HITACHI

MODEL V-1050F

OSCILLOSCOPE

SERVICE MANUAL

Hitachi Denshi, Ltd.

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CONTENTS

1. Specifications 1
2. Composition 7
3. Preventive maintenance 8
4. Calibration 10
   - 4.1 Calibration interval 10
   - 4.2 Test equipment required 10
   - 4.3 Preliminary procedure 10
   - 4.4 Preliminary control settings 12
   - 4.5 Initial starting procedure 12
5. Electrical parts arrangement (with Adjustment Locations)... 29
   - PEF-495F PCB 29
   - PEF-496F/PEF-497F PCB 33
   - PEF-499F PCB 35
6. Electrical parts list 37
   - PEF-492F-493F PCB 37
   - PEF-494F PCB 37
   - PEF-496F PCB 41
   - PEF-497F PCB 44
   - PEF-498F PCB 47
   - PEF-499F PCB 48
   - PEF-500F PCB 49
   - PEF-501F PCB 50
   - PEF-502F PCB 50
   - PEF-503F PCB 50
   - PEF-504F PCB 50
   - Cabinet 51
7. Schematic diagrams 53
   - ① Vertical preamplifier 53
   - ② Vertical output amplifier & channel switch 55
   - ③ Trigger (1/2) 57
   - ④ Trigger (2/2) 59
   - ⑤ Sweep generator 61

◈6 Calibrator & front panel controls 63
◈7 Horizontal amplifier, Z-axis amplifier & high voltage circuits 65
◈8 Power supply 67
◈9 Connectors 69
8. Mechanical parts list and exploded view 71

NOTICE

This Service Manual describes the most typical product of this model. If there are any specific differences between this Manual and the servicing unit, please contact Hitachi Denshi sales office in your area.

MODEL V-1050F
OSCILLOSCOPE
Service Manual

1. SPECIFICATIONS

o CRT

Type

Hitachi 150 BNB31 rectangular mesh type tube with 20 kV acceleration potential and metal backed phosphor.

Screen type

P31 phosphor standard

Useful screen area

8 x 10 div (1 div = 10 mm)

Graticule

Internal graticule with centimeter divisions and 2 mm subdivisions along the centeral axis 10 % and 90 % lines are indicated. Illumination continuously variable.

Focussing

Possible (with automatic focus correction circuit)

Trace rotation	Present
Scale illumination	Variable
Brightness adjustment	Possible

o Z-AXIS

DC-coupled, positive-going signal decreases intensity: 5 Vp-p

Signal causes noticeable modulation at normal intensity: DC to 3.5 MHz

Input impedance	Approximately 15 kΩ
Maximum input voltage	20 V (DC + AC peak)
Coupling	DC

o VERTICAL DEFLECTION (2 Identical Channels)

Bandwidth and rise time

DC to at least 100 MHz and rise time 3.5 ns or less. DC to at least 5 MHz and rise time 70 ns or less at magnifier extends. Lower -3 dB point, AC coupling 10 Hz or less.

Deflection factor

5 mV/div to 5 V/div in 10 calibrated steps, 1-2-5 sequence. Uncalibrated continuous control extends deflection factor to at least 12.5 Volts per division in the 5 Volts/div position. x10 magnifier increases sensitivity of each deflection factor setting to 500 μV/div.

Accuracy

x1 ±2 % (+10 °C to +35 °C) ±4 % (0 °C to +50 °C)
x10 ±3 % (+10 °C to +35 °C) ±5 % (0 °C to +50 °C)
Additional error for magnifier ±1 %

Display modes

CH1, CH2 (normal or invert), Alternate, Chopped (250 kHz rate), Added

Input impedance

1M Ω ±1.5 % in parallel with 28 pF ± 3 pF

Maximum input voltage

250 V (DC + AC peak) or 500 Vp-p AC at 1 kHz or less

Input coupling

AC-GND-DC

Delay line

Permits viewing leading edge of display waveform.

Four-trace display (TRIG VIEW)

Display simultaneously channel 1, Channel 2, Channel 3 (A EXT TRIG signal), Channel 4 (B EXT TRIG signal). The deflection factor of Channel 3 and Channel 4 is approx. 200 mV/div.

Sensitivity	INT:	1/1 ± 30 % of screen area
	EXT:	0.2 V/div ± 30 %
Frequency band	EXT:	DC to 70 MHz (-3 dB)
Position	CH3:	Horizontal 100 % graticule line of screen ± 1 div (trigger level knob is set at the center).
	CH4:	Horizontal 0 % graticule line of screen ± 1 div

o HORIZONTAL DEFLECTION

Time base A

20 ns/div to 0.5 s/div in 23 calibrated steps, 1-2-5 sequence. Uncalibrated continuous control extends deflection factor to at least 1.25 seconds per division in the 0.5 sec/div position. x10 mag extends fastest sweep rate to 2 ns/div.

Time base B

20 ns/div to 50 ms/div in 20 calibrated steps 1-2-5 sequence. x10 mag extends fastest sweep rate to 2 ns/div.

Accuracy

±2 % (+10 °C to +35 °C)

±4 % (0 °C to +50 °C)

Additional error for magnifier ±2 %

A sweep variable	Present

Horizontal display modes

A only, A intensified, Alternate, B delayed, X-Y operation

Delayed sweep position adjustment	1 div or less - 10 div or more
Delay sweep variable	Present
Delay time jitter	Better than 1:20,000

o TRIGGERING A AND B

A trigger modes

Automatic, Normal, Single Sweep, TV (TV-H or TV-V)

A trigger hold-off

Adjustable control permits a stable presentation of repetitive complicated waveform.

A trigger source

Internal (Ch1, Ch2), Line, External, External ÷10

A trigger slope

+ or -

TV sync polarity

TV(+) or TV (-)

Triggering level variable range — For both A and B. Internal; ±4 div or more
External; approximately ±1 V
External ÷10; approximately ±10 V

Triggering sensitivity and frequency — For both A and B. However, ( ) is only for B

Frequency	Internal	External	External ÷10
DC(30 Hz) - 10 MHz	0.3 div	50 mV	500 mV
10 MHz - 100 MHz	1.5 div	150 mV	1.5 V

TV-V sensitivity: SYNC section less than 0.7 div or 200 mV

AUTO low band : Approximately 30 Hz (When Time Base A is 20 ns/div to 2 ms/div.)

A trigger coupling

AC : 30 Hz to full bandwidth

HF REJ : attenuates signals below approximately 4 kHz

LF REJ : attenuates signals above approximately 4 kHz

DC : 0 to full bandwidth

A external trigger input impedance

1 MΩ ±20 % in parallel with 28 pF ±6 pF (However, setting HF REJ and LF REJ are not included.)

Maximum input voltage

250 V (DC + AC peak at 1 kHz or less)

500 Vp-p AC at 1 kHz or less

B trigger modes and source

Automatic, Normal (CH1, CH2, External)

B trigger slope

+ or -

Trigger coupling

AC only; 30 Hz to full bandwidth

o X-Y OPERATION (CH1; Horiz, CH2; Vert)

Deflection factor

Same as vertical deflection

Accuracy

Y: ±2 % (+10 °C to +35 °C), ±4 % (0 °C to +50 °C)

X: ±5 % (+10 °C to +35 °C), ±7 % (0 °C to +50 °C)

X-bandwidth

DC to at least 2 MHz

Phase error

3 ° or less from DC to 2 MHz

o CALIBRATOR

0.5 V ± 1 % frequency 1 kHz ±1 % square wave

Rise time 5 μs or less

o OUTPUT SIGNALS

A GATE OUT	TTL OUTPUT (74LS00 with OUTPUT series resistance 100 Ω)
B GATE OUT	TTL OUTPUT (7400 with OUTPUT series resistance 100 Ω)

o POWER SUPPLY

VOLTAGE (50/60 Hz)	FUSE
100 V (90 - 110 V)	2A
120 V (108 - 132 V)	2A
220 V (199 - 242 V)	1A
240 V (216 - 264 V)	1A

Nominal voltage ± 5 % at 400 Hz

Power supply frequency : 50, 60, 400 Hz

Power consumption : Approximately 60 W

o ENVIRONMENT

Limit of operation temperature	0 - 50 °C
Limit of operation humidity	35 - 85 %
Rated range of use temperature	10 - 35 °C
Rated range of use humidity	45 - 85 %
Storage and transport	-20 - 70 °C

o DIMENSIONS AND WEIGHT

310 (W) x 180 (H) x 410 (D) mm (12.2 (W) x 7.1 (H) x 16.1 (D) in)
10.2 kg (22.5 lbs)

2. COMPOSITION

(1) Model V-1050F oscilloscope unit 1

(2) Probe (AT-10AE 1.5) 2

(3) Fuse (2A for 100 V and 120 V set
or 1A for 220 V and 240 V set) 1

(4) Screw-driver 1

(5) Dust proof cover 1

(6) Power supply cord 1

(7) Operation manual 1

3. PREVENTIVE MAINTENANCE

Preventive maintenance, when performed on a regular basis, can prevent instrument breakdown and may improve the reliability of the oscilloscope. The severity of environment to which this instrument is subjected will determine the frequency of maintenance. A convenient time to perform preventive maintenance is preceding recalibration of the instrument.

Disassembly

Remove the 4 screws in the top cover of the instrument. Gently separate the top cover from the instrument and lay aside. Most of the internal parts of the instrument are now accessible.

If access to the front of the circuit boards are necessary, remove the knobs from the extenal control shafts on the board. Remove the two screws securing the side panel to the Input circuit board and remove the instrument side panel. (See 8. Exploded View)

Cleaning

The instrument should be cleaned as often as operating conditions require. Accumulation of dirt in the instrument can cause component breakdown.

The covers provide protection against dust in the interior of the instrument. Loose dust accumulated on these covers can be removed with a soft cloth or small brush.

Dirt that remains can be removed with a soft cloth dampened in a mild detergent and water solution. Abrasive cleaners should not be used.

Cleaning the interior should only be occasionally necessary. The best way to clean the interior is to blow off the dust with a dry, low-velocity stream of air. A soft-bristle brush or a cotton-tipped applicator is useful for cleaning in narrow spaces or for cleaning more delicate components.

Visual Inspection

The instrument should be inspected occasionally for such defects as broken connections, improperly seated transistors, damaged circuit

boards, and heat-damaged parts. The corrective procedure for most visible defects is apparent; however, particular care must be taken if heat-damaged components are found. Overheating usually indicates other trouble in the instrument; therefore, correcting the cause of the overheating is important to prevent recurrance of the damage.

4. CALIBRATION

Hitachi Denshi, Ltd. provides complete instrument repair and recalibration at our oversea's office, and authorized dealer. Contact your local Hitachi Denshi, Ltd. office or representative.

4. 1 Calibration interval

To maintain instrument accuracy, perform the calibration of the V-1050F at least every 1000 hours of operations or every six month if used infrequently.

4. 2 Test equipment required

The following test equipment and accessories, or equivalent, are required for the complete calibration of the V-1050F. The given specifications for the test equipment are the minimum necessary for accurate calibration. Therefore, the specifications of any test equipment used must meet or exceed the listed specifications. All the test equipment is assumed to be correctly calibrated and operating within the listed specification. Operating instructions for the test equipment are not given in this procedure. Refer to the instruction manual for the test equipment if more information is needed.

4. 3 Preliminary procedure

This instrument should be calibrated at an ambient temperature of +20 °C ($\pm$5 °C) for best overall accuracy.

1. Connect the instrument to AC line voltage, 50/60/400 Hz line source.
2. Set the instrument controls as given in the Preliminary Control Settings. Allow at least fifteen minutes of warmup before proceeding.
3. See the Adjustment Locations in the pullout pages.

Table 4-1

TEST EQUIPMENT REQUIRED

Description	Minimum Specification	Usage	Examples of Applicable Test Equipment
1. Constant Amplitude Signal Generator	50 kHz reference frequency; maximum frequency 150 MHz; variable amplitude	Check horizontal, vertical and trigger handwidth.	
2. Standard Amplitude Calibrator	Amplitude accuracy: 0.25 %, variable amplitude; 5 mV to 40 V; frequency: 1 kHz square wave	Check horizontal and Vertical gain.	
3. Square-wave Generator	Variable frequency: 10 Hz to 1 MHz; output amplitude; 10 mV to 100 V	Check probe and vertical compensation.	
4. Digital Multimeter	0.1 % accuracy	Check power supply.	
5. Digital Frequency Counter	0.1 % accuracy	Check CAL frequency.	
6. Time Mark Generator	0.1 % accuracy	Check horizontal timing.	
7. Cable	Impedance, 50 Ω; type, RG-58/U; length, 42 inches, connectors, BNC.	External trigger operation check. Horizontal gain check and adjustment.	Hitachi Part No.4202
8. Termination	Impedance, 50 Ω; connectors, BNC.	Vertical Amplifier compensation checks and adjustment.	
9. Attenuator	Ratio, 10X; connectors, BNC; impedance, 50 Ω	Vertical Amplifier bandwidth check.	
10. T-Connector	Connectors, BNC.	External trigger operation checks.	Hitachi Part No.1301

4. 4 Preliminary control settings

Preset the instrument controls to the settings given below, when starting the calibration procedures.

FOCUS	Midrange	FINE	Midrange
TRACE ROTATION	As desired	VAR HOLD OFF	Fully counter-clockwise
V. POSITION	Midrange, push in	SWP VAR	Fully clockwise, push in
V. VARIABLE	CAL, fully clockwise	DISPLAY	A
AC-GND-DC	GND		- B TRIG -
VOLTS/DIV	5 mV/DIV	SOURCE	AUTO
V. MODE	CH1	LEVEL	Midrange, push in
TRIG VIEW	Normal (Button Out)		- A TRIG -
INV	Normal (Button Out)	LEVEL	Midrange, push in
SCALE ILLUM	Fully counterclockwise	RESET	Normal
H. POSITION	Midrange	MODE	Auto
PULL X10 MAG	Midrange, push in	COUPLING	AC
TIME/DIV A	1 ms	SOURCE	CH1
DLY TIME MULT	Midrange		

4. 5 Initial starting procedure

1. Rotate POWER/INTENSITY control to the midrange.
2. Wait a few seconds for the cathode ray tube (CRT) to warm up. A trace should appear on the display of the CRT.
3. If trace disappears, increase (clockwise) the POWER/INTENSITY control setting until the trace is easily observed, or roughly check/adjust the DC balance to get a trace as same as (15).
4. Adjust FOCUS control for the best focused display.
5. Readjust POSITION controls if necessary, to center the trace.

POWER SUPPLY SYSTEM

NOTE

Before you begin, see ADJUSTMENT LOCATIONS in the pullout pages.

Control Settings

Preset the controls as given in the Preliminary Control Setting.

(1) Check Low-voltage Supply, if necessary.

a. Connect the digital voltmeter (DVM) from the +12 volt line.
: +11.975 V to +12.025 V (P1104-3)

b. Connect the DVM from the -12 V line.
: -11.75 V to -12.25 V (P1104-5)

c. Connect the DVM from the +5 V line.
: +4.75 V to +5.25 V (P1104-4)

d. Connect the DVM from the +55 V.
: +53 V to 57 V (P1104-2)

e. Connect the DVM from the 100 V
: +98 V to +102 V (P1104-1)

(2) Adjust Low-voltage Supply.

Adjust the adjustment RV1112 for DVM reading of +12 V ($\pm$0.025 V).

(3) Check High Voltage Supply.

a. Connect the DVM to the H.V test point (PEF-503-2) by High Voltage Probe.

b. Check for a reading of -1870 V - -2030 V

Control Setting

Preset the controls as given in the Preliminary Control Setting.

(4) Check/Adjust CRT Bias.

DISPLAY switch to the [A] position, and A TIME/DIV switch to the 1 ms.

a. Rotate the POWER/INTENSITY to the "N" letter of the "INTENSITY" as shown.

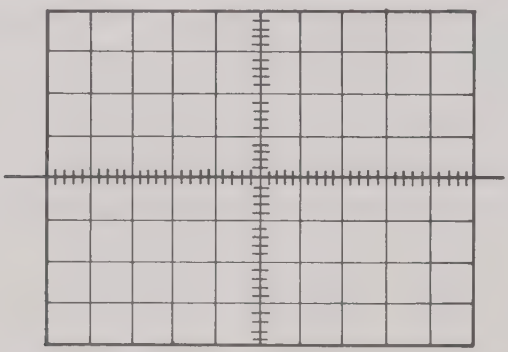
b. Observe the trace of CRT.

c. Adjust Grid Bias Adjustment RV1040 for the trace makes an appear.

(5) Check/Adjust Trace Rotation.

a. Check that the trace is parallel to the center horizontal line.

b. Adjust TRACE ROTATION for a trace that is parallel with the horizontal graticule lines.



⑥ Check/Adjust GEOMetry.

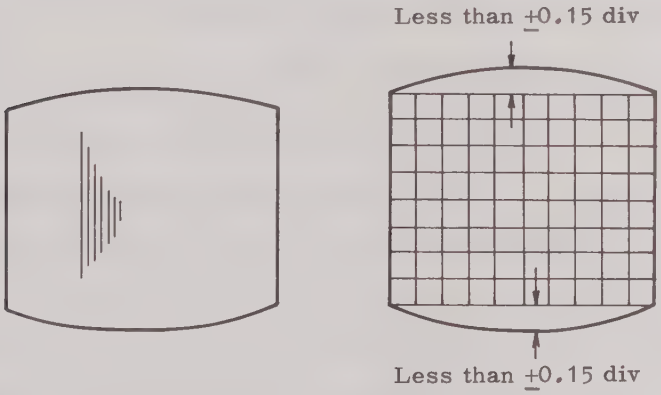
a. Set the A TIME/DIV switch to the 1 ms and AC-GND-DC to DC.

b. Connect the Constant Amplitude Signal Generator to the input.

c. Set the VOLTS/DIV switch setting for a full-screen (8 division) deflection.

d. Check that horizontal bowing is less than ±0.15 division.

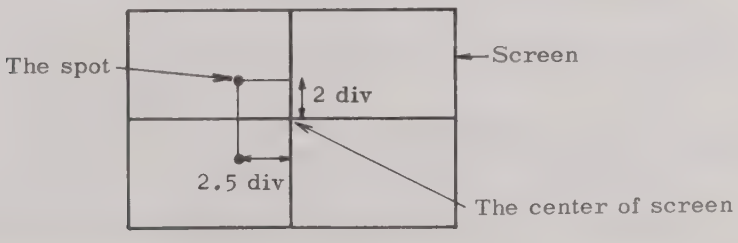
e. Adjust the GEOM adjustment RV1035 for a display that is parallel with top and bottom horizontal lines.



⑦ Check/Adjust ASTIGmatism and FOCUS.

a. Vertical Mode switch to the CH2 [X-Y] position, and Display switch to the [X-Y] position, and AC-GND-DC to DC.

b. Set the [POWER ON] INTENSITY control for a small spot, as the following figure, using position controls.



c. Check that the spot is round.

d. Adjust the FOCUS adjustment and the ASTIG adjustment RV1038 for a round spot.

HORIZONTAL SYSTEM

Control Settings

Preset the controls as given in the Preliminary Control settings.

(8) Check/Adjust Delay time.

a. Vertical Mode Switch to the CH1 position.

b. Set the A TIME/DIV switch to the 1 ms.

c. Set the B TIME/DIV switch to the 0.5 μs.

d. Set the input AC-GND-DC to DC, connect the cable to the output of the time mark generator, set the time mark generator for 1 ms time marks.

e. Display switch to the INTEN.

f. Connect the cable to the output of the time mark generator.

g. Set the time mark generator for 1 ms time marks.

h. Set the DELAY TIME MULT dial to 1.00.

i. Check that intensified portion of the sweep begins at the second time marker (It may be necessary to readjust the INTENSITY control, so that the intensified portion of the sweep is visible.)

j. Adjust the RV562 so that the intensified portion of the sweep begins at the start of the second time marker.

k. Set the DELAY TIME MULT dial to 9.00.

l. Check that intensified portion of the sweep begins at the tenth time marker.

m. Adjust the RV560 so that the intensified portion of the sweep

begins at the start of the tenth time marker.

n. Repeat both the RV562 and the RV560 adjustments for no visible interaction.

(9) Check/Adjust Horizontal Gain.

a. DISPLAY switch to the A position.

b. Check that the time marks align with the graticule lines over the center eight divisions, within 2 %.

c. Adjust H GAIN adjustment RV813 so that the time marks align with the center eight graticule lines.

(10) Check/Adjust B Sweep Start.

a. Set the input AC-GND-DC to GND.

b. Set the A TIME/DIV switch to the 2 ms.

c. Adjust the Position control so that the beginning of the A sweep is coincident with the first vertical graticule line.

d. Set the B TIME/DIV switch to the 1 ms.

e. DISPLAY switch to the B position.

f. Check that the beginning of the B sweep is identical with the first vertical graticule line.

g. Adjust the RV 714 so that the beginning of the sweep is identical with the first vertical graticule line.

(11) Check/Adjust B Sweep Calibration.

a. Set the input AC-GND-DC to DC.

b. Check that the time marks align with the graticule lines over the center eight divisions, within 2 %.

c. Adjust B SWEEP CAL adjustment RV742 so that the time marks align with the center eight graticule lines.

⑫ Check/Adjust Horizontal X 10 MAG Gain.

a. DISPLAY switch to the A position, set the A TIME/DIV switch to the 1 ms.

b. Set X 10 MAG (Pull out the inner knob of the POSITION control).

c. Check that the one-cycle time marks align with the ten-divisions graticule lines, within 2 %.

d. Adjust MAG GAIN adjustment RV804 for one-cycle time marks align with the ten-divisions graticule lines.

e. Push in the inner of the POSITION control after the adjustment and check.

⑬ Check/Adjust MAG CENT.

a. Set the A TIME/DIV switch to the 0.1 ms.

b. Being the inner shaft of H. POSITION is in pulled out state (X 10 MAG), the left end of the trace is brought to the center point and then the inner shaft of H. POSITION is depressed.

c. Observe the movement of the left end of the trace.

d. Adjust the MAG CENT adjustment RV811 for the movement of the left end of the trace within $\pm$0.2 div.

⑭ Check/Adjust High speed sweep accuracy.

a. Set the input AC-GND-DC to DC.

b. Display switch to the A position.

c. Set the time mark generator for 50 ns time marks.

d. Set the A TIME/DIV switch to 50 ns.

e. Check that the time marks align with the graticule lines over the center eight divisions.

f. Adjust CV530 at that the time marks align with center eight graticule lines.

g. Display switch to the B position.

h. Set the A TIME/DIV switch to 0.2 μs.

i. Set the B TIME/DIV switch to 50 ns.

j. Refer part (e) through (f) (in this case, adjust CV730)

k. Display switch to the A position.

l. Set the A TIME/DIV switch to 5 μs.

m. Set the time mark generator for 5 μs time marks.

n. Refer part (e) through (f) (in this case, adjust CV534).

o. Display switch to the B position.

p. Set the A TIME/DIV switch to 20 μs.

q. Set the B TIME/DIV switch to 5 μs.

r. Refer part (e) through (f) (in this case, adjust CV 734).

s. Display switch to the A position.

t. Set the A TIME/DIV switch to 20 ns.

u. Set the time marks generator for 20 ns time marks.

v. Refer part (e) through (f) (in this case, adjust RV540).

w. Display switch to the B position.

x. Set the A TIME/DIV switch to 50 ns.

y. Set the B TIME/DIV switch to 20 ns.

z. Refer part (e) through (f) (in this case, adjust RV740).

d. Check all other ranges of timing within 2 %.
Use appropriate settings on the time mark generator.

VERTICAL SYSTEM

Control Setting

Preset the controls as given in the Preliminary Control Settings.

⑮ Check/Adjust DC Balance (Step attenuator balance).

a. Set the VOLTS/DIV switch to the 5 mV position.

b. Position the trace to the horizontal center line.

c. Change the VOLTS/DIV switch to the 10 mV position.

d. Check that the trace is within 0.1 division of the center horizontal line.

e. Adjust the CH1 (CH1) DC BAL adjustment, RV7 (CH1) or RV107 (CH2), for a trace at the horizontal center line (DC BAL adjustment RV7 and RV107 are possible to adjust at the adjusting point on the front panel.)

f. Repeat part (a) through (e) until less than 0.1 division shift is noted when changing the VOLTS/DIV setting.

⑯ Check/Adjust Vertical Position Center.

a. Confirm the vertical POSITION control at the midrange.

b. Check the trace is within 1 division.

c. Adjust the Position Center adjustment RV73 (CH1), RV173 (CH2) for a trace at the horizontal center line.

⑰ Check/Adjust ADD BALANCE.

a. Set the A TIME/DIV to the 1 ms position, the Display switch to A.

b. Set the CH1 and CH2 AC-GND-DC switches to GND.

c. Set the V MODE switch to CH1.

d. Adjust the vertical Position control that the trace is identical with the center horizontal graticule line.

e. Next, set the V MODE switch to CH2 and adjust the vertical Position control that the trace is identical with the center horizontal graticule line.

f. Set the V MODE switch to ADD.

g. Check that the trace is identical with the center horizontal graticule line within $\pm$ 0.5 division.

h. Adjust ADD BAL adjustment RV327 for two times of the difference with the center horizontal graticule line.

(18) Check/Adjust X 1 AC GAIN.

a. Set the A TIME/DIV switch to the 1 ms position.

b. Set the VOLTS/DIV switch to the 10 mV position.

c. Set the AC-GND-DC switch to DC.

d. Connect the square-wave generator (using 1 kHz out put range).

e. Adjust the output amplitude of that generator for 5 division deflection of screen.

f. Check the high-voltage level of pulse is flat.

g. Adjust the X 1 AC GAIN RV33 (CH1), RV133 (CH2) adjustment for a flat level.

⑲ Check/Adjust Vertical Gain.

a. Set the A VOLTS/DIV switch to the 10 mV position and AC-GND-DC switch to DC.

b. Connect the standard amplitude calibrator to the input.

c. Set the standard amplitude calibrator for a 50 mVp-p (5 divisions of display) signal.

d. Check for a display of five divisions.

e. Adjust GAIN adjustment RV339 (CH1), RV160 (CH2) for a display of 5 divisions within 2 %.

f. Check all the VOLTS/DIV switch settings.

⑳ Check/Adjust Input Capacity (ATT: ÷1).

a. Set the VOLTS/DIV switch to 10 mV position.

b. Set the AC-GND-DC switch to DC.

c. Connect the L-C meter to the input terminals.

d. Check the input capacity for approximately 28 pF.

e. Adjust CV3 (CH1), CV103 (CH2) for a 28 pF input capacity.

㉑ Check/Adjust Vertical Step Response.

a. Set the VOLTS/DIV switch to the 10 mV position.

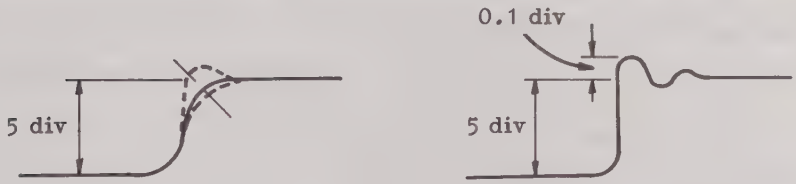
b. Set the A TIME/DIV switch to the 20 ns position.

c. Connect the fast-rise, positive output (50 mV, 1 kMz) of the square-wave generator to the input. Use a 50-ohm termination and cable.

d. Set the square-wave generator to 1 MHz. Adjust the square-wave generator output for a 5-divisions display.

e. CH1 - Set CV63 and RV63 to the midposition. And adjust CV325, CV342 and CV344 for a square wave that is flat. Then, adjust CV63 and RV63 for over-shoot that is +0.1 div.

CH2 - Adjust CV163 and RV163 for over-shoot that is +0.1 div.



(22) Check/Adjust Attenuation Compensation.

(ATT : ÷10, ÷100, ÷250)

a. Set the AC-GND-DC switch to DC.

b. Connect the square-wave generator to the CH1 (CH2) input terminal check for a square wave that is flat (flat top) under the following settings.

ATT	VOLTS/DIV	The square-wave generator output
÷10	50 mV	0.25 V
÷100	0.5 V	2.5 V
÷250	5 V	25 V

c. Adjust the trimmer condensers for a square (flat top) under the following settings.

ATT	VOLTS/DIV	The square-wave generator output	Adjust CH1 (CH2)
÷10	50 mV	0.25 V	Comp-1/10
÷100	0.5 V	2.5 V	Comp-1/100
÷250	5 V	25.0 V	Comp-1/250

(23) Check/Adjust Input Capacity (ATT: ÷10, ÷100, ÷250).

a. Connect the L-C meter to the input terminal.

b. Check the input capacity for a approximately 28 pF.

c. Adjust the trimmer condensers for a 28 pF input capacity under the following settings.

ATT	VOLTS/DIV	Adjust CH1 (CH2)
÷ 1	10 mV	Cin - 1/10
÷ 10	0.1 V	Cin - 1/100
÷100	1 V	Cin - 1/250

TRIGGERING SYSTEM

(24) Check/Adjust A TRIG CENT.

a. Set A TRIG SOURCE switch to CH1, A TRIG COUPLING switch to AC, A TRIG SLOPE knob push in, the VOLTS/DIV switch to 10 mV, the A TIME/DIV switch to 20 μs.

b. Connect the sine-wave generator to the input for a 0.3 div (50 kHz).

c. Set A TRIG LEVEL knob to the midposition.

d. Adjust RV441 so that synchronization is effected on the waveform, 0.3 div on the screen.

e. Under the state of (d), if synchronization is not effected by switching A TRIG COUPLING to "DC," set CH1 (CH2) DC LEVEL adjustment RV211 (CH1) and RV311 (CH2) so that synchronization is effected.

f. Next, set A TRIG SLOPE to -(pulled out state) and insure that synchronization is effected. After confirmation, leave A TRIG-SLOPE in depressed state. Readjust when stepped out.

(25) Check/Adjust B TRIG CENT.

a. Set A TRIG SOURCE switch to CH1, B TRIG SLOPE knob push in, the B TIME/DIV switch to 5 μs. Set the DISPLAY switch to INTEN.

b. Set B TRIG LEVEL knob to the midposition.

c. Check for the intensified portion of the sweep.

d. Adjust RV622a so that the intensified portion of the sweep appears. (Synchronization is effected.)

e. Next, set B TRIG slope to -(pulled out state) and insure that synchronization is effected. After confirmation, leave B TRIG-SLOPE in depressed state. Readjust when stepped out.

(26) Check/Adjust TRIG VIEW Position.

a. Set the A TIME/DIV switch to the 1 ms.

b. Set the V MODE switch to ALT (or CHOP).

c. Push the TRIG VIEW button in.

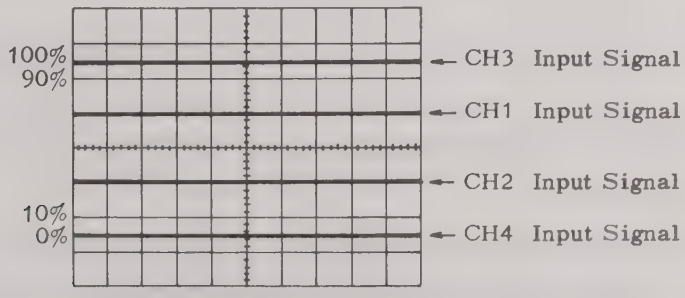
d. Set the A TRIG LEVEL knob to the midposition.

e. Observe the four-trace display (CH1, CH2, CH3: A TRIG signal, CH4: B TRIG signal).

f. Check that the CH3 trace is identical with the horizontal 100 % graticule line and the CH4 trace is identical with the horizontal 0 % graticule line.

g. Adjust the A POS adjustment RV231 so that the CH3 trace comes to the ±1 div on the 100 % graticule line.

h. Adjust the B POS adjustment RV249 so that the CH4 trace comes to the ±1 div on the 0 % graticule line.



(27) Check/Adjust CH3 (A EXT TRIG) and CH4 (B EXT TRIG).

a. Set the A TRIG SOURCE switch to the EXT position, the A COUPLING switch to the DC point, the A MODE switch to the AUTO position, the B TRIG SOURCE switch to the EXT position, and push the TRIG VIEW button in.

b. Connect the square-wave generator (using 1 kHz out put range) to CH3 (A EXT TRIG) and CH4 (B EXT TRIG) terminal. Use a 50-ohm termination and cable.

c. Check the high-voltage level of pulse is flat.

e. Adjust CV423 (CH3), CV603 (CH4).

(28) X-Y Operation

(28-1) Check/Adjust X Gain.

a. Set the vertical MODE switch to CH2 [X-Y] , the DISPLAY switch to [X-Y] , the AC-GND-DC switch of CH1 to DC, the AC-GND-DC switch of CH2 to GND.

b. Set the VOLTS/DIV switch to the 10 mV position, with X1 GAIN.

c. Connect the standard amplitude calibrator to the CH1 input.

d. Set the standard amplitude calibrator for a 50 mV.

e. Check for a display of five divisions.

f. Adjust the X GAIN adjustment RV783a for a display of five divisions within 3 %.

(28-2) Check/Adjust X Position Center.

a. Set the DISPLAY switch to [X-Y] position, the vertical MODE switch to CH2/ [X-Y] position and the horizontal POSITION control to the midposition, the AC-GND-DC switch of CH1 to GND.

b. Check to see that round spot is near the center graticule and is within 0.2 division against horizontal line.

c. Adjust the X CENT adjustment RV208 to position spot at the center.

(28-3) Check/Adjust X-Y phasing.

a. Set the AC-GND-AC switch of CH1 and CH2 to DC.

b. Connect the constant amplitude signal generator to the CH1 and CH2 inputs through 500 Ω BNC cable, 500 Ω BNC termination.

c. Adjust the constant amplitude signal generator for an eight division horizontal display of 1 MHz.

d. Center the display vertically and horizontally with the CH1 and CH2 POSITION controls.

e. Check CRT display for an opening at the center horizontal line of 0.4 division or less.

f. Adjust CV782A so that the opening at the center horizontal line becomes to 0 division.

g. Adjust the constant amplitude signal generator for eight division horizontal display of 2 MHz, comfirm CRT display for an opening at center horizontal line 0.4 division or less.

CALIBRATOR

(29) Check/Adjust CAL terminal (0.5 Vp-p, 1 kHz).

a. Connect the CAL terminal to the Digital frequency counter.

b. Check for the CAL frequency of 1 kHz, within 1 %.

c. Adjust the 1 kHz adjustment RV1203 for the CAL frequency of 0.99 to 1.01 kHz.

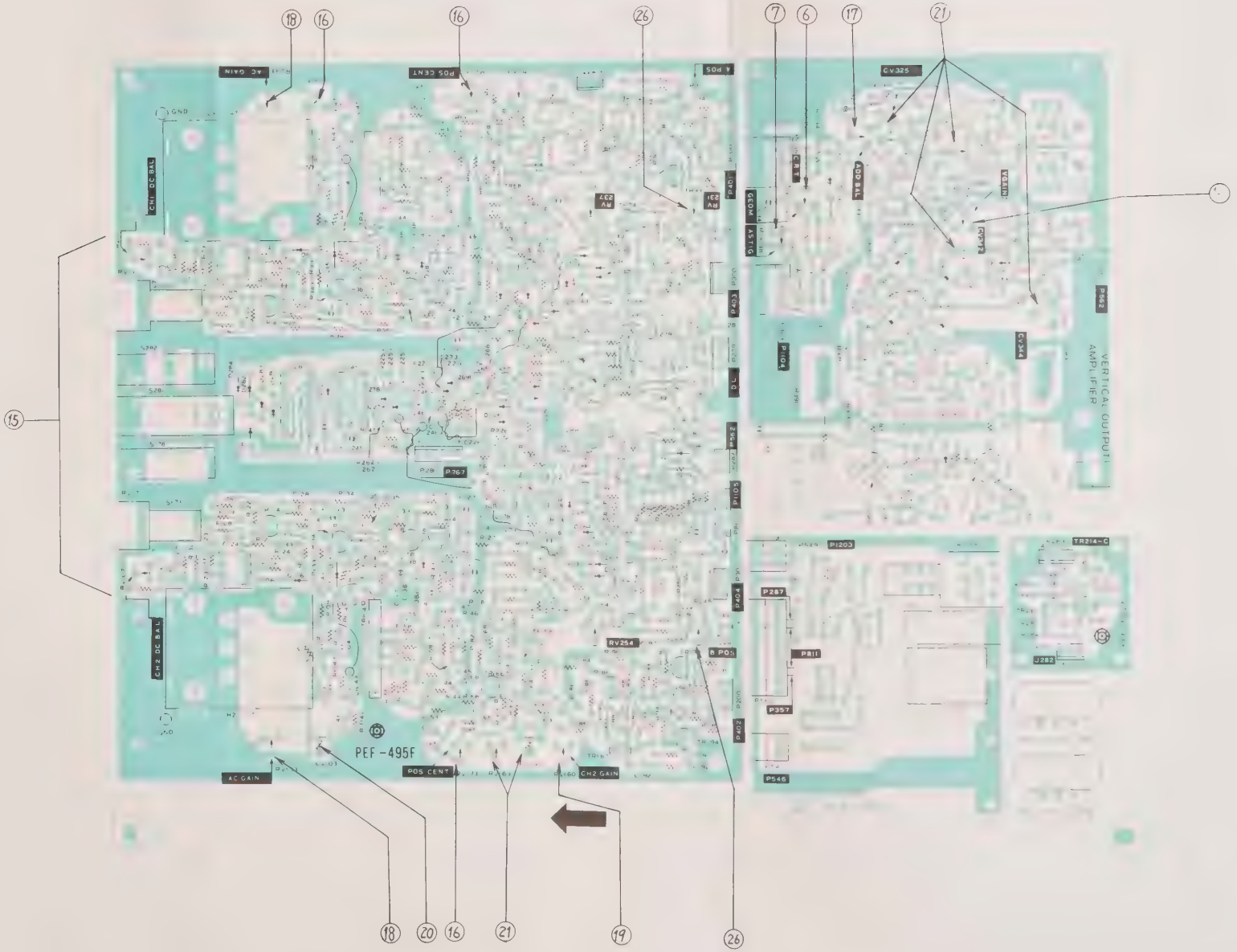
d. Next, connect the CAL terminal to the Digital Multimeter, short the terminal 1 to 3 of the connector (P1202).

e. Check for the CAL output of 0.5 V, within 1 %.

f. Adjust the 0.5 V adjustment RV1205 for the CAL output of 0.495 to 0.505 Volt.

5. ELECTRICAL PARTS ARRANGEMENT
(with Adjustment Locations)

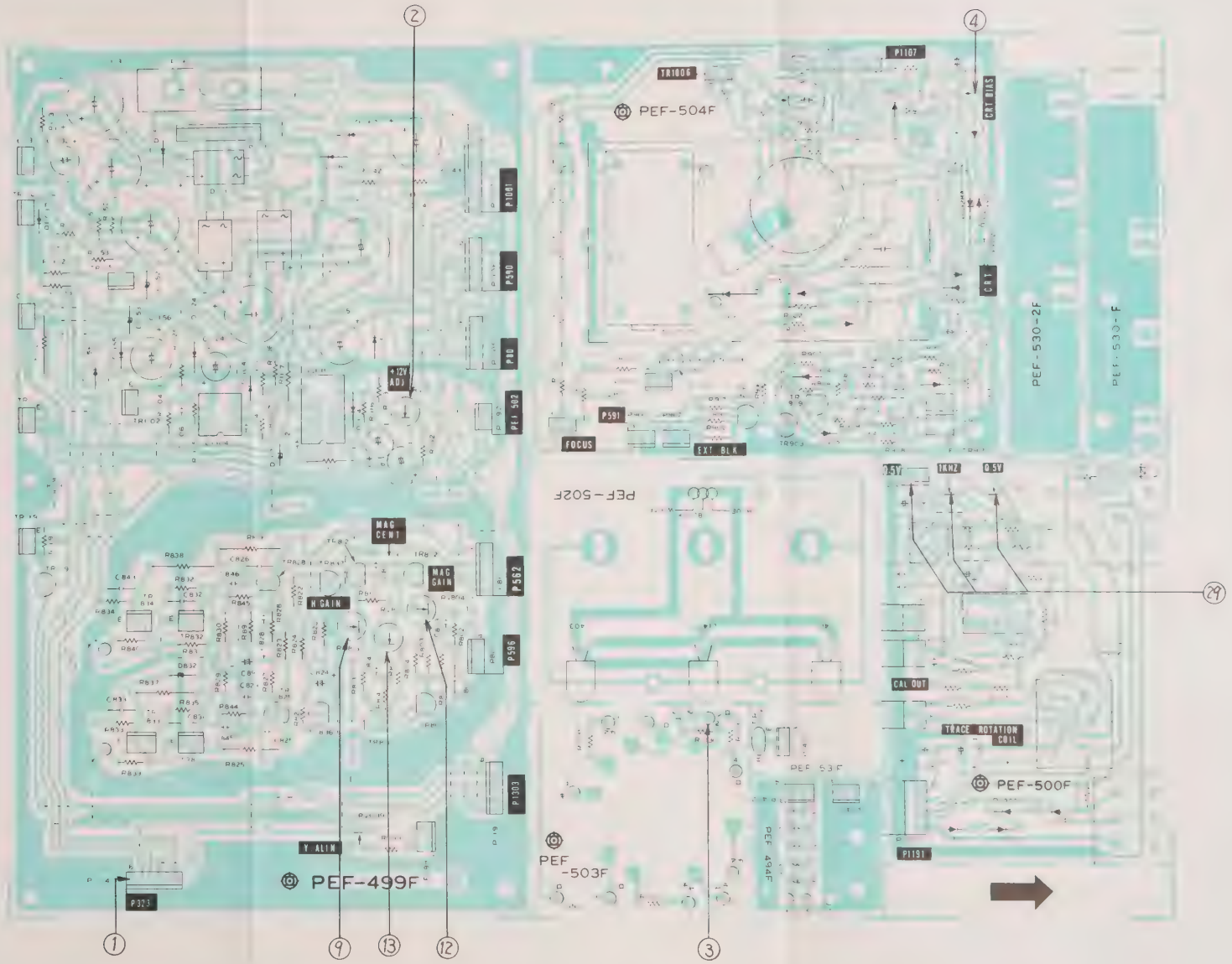
PEF-495F PCB (A)



PEF-495F PCB (B)

PEF-496F PEF-497F PCB

PEF-499F PCB


PEF-499F
PEF-504F
PEF-503F
PEF-500F
PEF-502F
PEF-530-2F
PEF-533-F
PEF 494F
PEF 53F
P323
P1001
P300
P00
P1502
P562
P506
P1303
P591
P1107
P1191
TR1006
+12V ADJ
MAG CENT
MAG GAIN
H GAIN
Y ALIN
FOCUS
EXT BLK
CRT BIAS
CRT
0.5V
1KHZ
0.5V
CAL OUT
TRACE ROTATION COIL
1
2
3
4
9
12
13
29

6. ELECTRICAL PARTS LIST

PEF-492F,493F PCB

Part Code	Symbol	Description	Q'ty
CQX0071	C1	C, Plastic 600V 22000pF ±10%	1
CQX0071	C101	C, Plastic 600V 22000pF ±10%	1
CCC1007	C2	C, Ceramic 50V 22pF ±5%	1
CCC1007	C102	C, Ceramic 50V 22pF ±5%	1
JHB0088	J1401	Coax. Con BNC071	1
JHB0088	J1402	Coax. Con BNC071	1
RCR3020	R2	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R102	R, Carbon 1/4W 47Ω ±5%	1
RCR3004	R1401	R, Carbon 1/4W 10Ω ±5%	1
RCR3004	R1402	R, Carbon 1/4W 10Ω ±5%	1
SSV0042	S1	SW, Slide SSB023 L=9 NS PCB	1
SSV0042	S101	SW, Slide SSB023 L=9 NS PCB	1

PEF-494F PCB

Part Code	Symbol	Description	Q'ty
CCC0999VA	C311	C, Ceramic 50V 5pF ±0.25pF	1
CCC0999VA	C312	C, Ceramic 50V 5pF ±0.25pF	1
HX3165202(A)	DL1401	Delay Line DL-100 H-1 100NS	1
TLF0003	L311	Coil FL-3H 0.22μH ±20%	1
TLF0003	L312	Coil FL-3H 0.22μH ±20%	1
JBX0704	P1402	Connector 171825-4	1
JBX0468	P1403	Connector 171825-3	1
HX116458	PEF-494	PCB PEF-499	R
CCD0275	C3	C, Ceramic 500V 5pF ±0.25pF	1
3142155B	CV3	C, Variable ECV-1ZW10x93	1
CCD0286	C4	C, Ceramic 500V 1000pF +100% -0	1
CCD0277	C9	C, Ceramic 500V 10pF ±0.5pF	1
CQA0094	C10	C, Plastic 50V 3300pF ±10%	1
CEC0175	C11	C, AL Elyc 25V 10μF	1
CEC0175	C13	C, AL Elyc 25V 10μF	1
CCC1029	C16	C, Ceramic 50V 1000pF +80% -20%	1
CCC1007	C17	C, Ceramic 50V 22pF ±5%	1
CEC0165	C18	C, AL Elyc 16V 220μF	1
CCC1030	C23	C, Ceramic 50V 10000pF +80% -20%	1
CCC1030	C24	C, Ceramic 50V 10000pF +80% -20%	1
CEC0170	C27	C, AL Elyc 16V 47μF	1
CCC1030	C27A	C, Ceramic 50V 10000μF +80% -20%	1
CCD0271	C35	C, Ceramic 500V 0.5pF ±0.25pF	1
CCC0997	C34A	C, Ceramic 50V 3pF ±0.25pF	1
CCC0999	C36	C, Ceramic 50V 5pF ±0.25pF	1
CEC0170	C38	C, AL Elyc 16V 47μF	1
CCC1030	C38A	C, Ceramic 50V 10000pF +80% -20%	1
CCD0271	C39	C, Ceramic 50V 0.5pF ±0.25pF	1
CCC0999	C40	C, Ceramic 50V 5pF ±0.25pF	1
CCC1030	C42	C, Ceramic 50V 10000pF +80% -20%	1
CCC1014	C43	C, Ceramic 50V 47pF ±5%	1
CCC0997	C44	C, Ceramic 50V 3pF ±0.25pF	1
CCC0997	C53	C, Ceramic 50V 3pF ±0.25pF	1
CCC1001	C57	C, Ceramic 50V 8pF ±0.5pF	1
CCC1007	C58	C, Ceramic 50V 22pF ±5%	1
CCC1002	C63	C, Ceramic 50V 10pF ±0.5pF	1
HX3142155C	CV63	C, Variable ECV-1ZW20x93	1
CCC1029	C65	C, Ceramic 50V 1000pF +80% -20%	1
CCC1007	C66	C, Ceramic 50V 22pF ±5%	1
CCC1365	C67	C, Ceramic 50V 680pF ±10%	1
CCC0996	C68A	C, Ceramic 50V 2pF ±0.25pF	1
CCC1365	C69	C, Ceramic 50V 680pF ±10%	1
CCC0997	C71A	C, Ceramic 50V 3pF ±0.25pF	1
CCD0286	C70A	C, Ceramic 500V 1000pF +100% -0	1
CCC1029	C73	C, Ceramic 50V 1000pF +80% -20%	1
CCC0997	C73A	C, Ceramic 50V 3pF ±0.25pF	1
CCC0996	C74A	C, Ceramic 50V 2pF ±0.25pF	1
CEC0175	C75	C, AL Elyc 25V 10μF	1
CCC1030	C75A	C, Ceramic 50V 10000pF +80% -20%	1
CCC1011	C88	C, Ceramic 50V 33pF ±5%	1
CCC1029	C90	C, Ceramic 50V 1000pF +80% -20%	1
CCC1029	C92	C, Ceramic 50V 1000pF +80% -20%	1
CCC1030	C97	C, Ceramic 50V 10000pF +80% -20%	1
CCD0275	C103	C, Ceramic 500V 5pF ±0.25pF	1
HX3142155B	CV103	C, Variable ECV-1ZW10x93	1
CCD0286	C104	C, Ceramic 500V 1000pF +100% -0	1
CCD0277	C109	C, Ceramic 500V 10pF ±0.5pF	1
CQA0094	C110	C, Plastic 50V 3300pF ±10%	1
CEC0175	C111	C, AL Elyc 25V 10μF	1
CEC0175	C113	C, AL Elyc 25V 10μF	1
CCC1029	C116	C, Ceramic 50V 1000pF +80% -20%	1
CCC1007	C117	C, Ceramic 50V 22pF ±5%	1
CEC0165	C118	C, AL Elyc 16V 220μF	1
CCC1030	C123	C, Ceramic 50V 10000pF +80% -20%	1
CCC1030	C124	C, Ceramic 50V 10000pF +80% -20%	1
CCC1030	C127A	C, Ceramic 50V 10000pF +80% -20%	1
CEC0170	C127	C, AL Elyc 16V 47μF	1
CCC0997	C134A	C, Ceramic 50V 3pF ±0.25pF	1
CCD0271	C135	C, Ceramic 500V 0.5pF ±0.25pF	1
CCC0999	C136	C, Ceramic 50V 5pF ±0.25pF	1
CEC0170	C138	C, AL Elyc 16V 47μF	1
CCC1030	C138A	C, Ceramic 50V 10000pF +80% -20%	1
CCD0271	C139	C, Ceramic 500V 0.5pF ±0.25pF	1
CCC1030	C142	C, Ceramic 50V 10000pV +80% -20%	1
CCC1014	C143	C, Ceramic 50V 47pF ±5%	1
CCC0997	C144	C, Ceramic 50V 3pF ±0.25pF	1
CCC0997	C153	C, Ceramic 50V 3pF ±0.25pF	1
CCC1001	C157	C, Ceramic 50V 8pF ±0.5pF	1
CCC1007	C158	C, Ceramic 50V 22pF ±5%	1
CCC1002	C163	C, Ceramic 50V 10pF ±0.5%	1
CCC0997	C164	C, Ceramic 50V 3pF ±0.25pF	1
HX3142155C	CV163	C, Variable ECV-1ZW20x93	1
CCC1029	C165	C, Ceramic 50V 1000pF +80% -20%	1
CCC1007	C166	C, Ceramic 50V 22pF ±5%	1
CCC1004	C167A	C, Ceramic 50V 39pF ±5%	1
CCC1365	C167	C, Ceramic 50V 680pF ±10%	1
CCC0996	C168A	C, Ceramic 50V 2pF ±0.25pF	1
CCC1365	C169	C, Ceramic 50V 680pF ±10%	1
CCC1004	C169A	C, Ceramic 50V 15pF ±5%	1

Part Code	Symbol	Description				Q'ty
CCC1029	C173	C, Ceramic	50V	1000 pF	+80 −20%	1
CEC0175	C176	C, AL Elyc	25V	10μF		1
CCC1030	C177A	C, Ceramic	50V	10000 pF	+80 −20%	1
CCC1030	C178A	C, Ceramic	50V	10000 pF	+80 −20%	1
CCC1007	C188	C, Ceramic	50V	22 pF	±5%	1
CCC1029	C190	C, Ceramic	50V	1000 pF	+80 −20%	1
CCC1029	C192	C, Ceramic	50V	1000 pF	+80 −20%	1
CCC1030	C197	C, Ceramic	50V	10000 pF	+80 −20%	1
CEC0175	C211	C, AL Elyc	25V	10μF		1
CEC0170	C212	C, AL Elyc	16V	47μF		1
CEC0175	C213	C, AL Elyc	25V	10μF		1
CEC0175	C214	C, AL Elyc	25V	10μF		1
CCD0287	C215	C, Ceramic	500V	4700 pF	+100 −0%	1
CCC1007	C221	C, Ceramic	50V	22 pF	±5%	1
CCC1014	C221A	C, Ceramic	50V	47 pF	±5%	1
CCC1007	C222	C, Ceramic	50V	22 pF	±5%	1
CCC1007	C225	C, Ceramic	50V	22 pF	±5%	1
CCC1014	C225A	C, Ceramic	50V	47 pF	±5%	1
CCC1007	C226	C, Ceramic	50V	22 pF	±5%	1
CCC1029	C233	C, Ceramic	50V	1000 pF	+80 −20%	1
	C237					
CCC1029	C243	C, Ceramic	50V	1000 pF	+80 −20%	1
	C238					
CCC1029	C244	C, Ceramic	50V	1000 pF	+80 −20%	1
CEC0175	C245	C, AL Elyc	25V	10μF		1
CCC1014	C246A	C, Ceramic	50V	47 pF	±5%	1
CCC1029	C250	C, Ceramic	50V	1000 pF	+80 −20%	1
CCC1029	C258	C, Ceramic	50V	1000 pF	+80 −20%	1
CCC1029	C259	C, Ceramic	50V	1000 pF	+80 −20%	1
	C262A	C, Ceramic	50V	47 pF	±5%	1
CCC1002	C271	C, Ceramic	50V	10 pF	±0.5pF	1
CEC0175	C276	C, AL Elyc	25V	10μF		1
CEC0175	C277	C, AL Elyc	25V	10μF		1
CCC1004	C278	C, Ceramic	50V	15 pF	±5%	1
CCC1032	C279	C, Ceramic	50V	82 pF	±5%	1
CCC0999	C281	C, Ceramic	50V	5 pF	±0.25pF	1
CEC0175	C282	C, AL Elyc	25V	10μF		1
CCC1030	C287	C, Ceramic	50V	10000 pF	+80 −20%	1
CCC1004	C294	C, Ceramic	50V	15 pF	±5%	1
HDS0108	D6	Diode	1S2075 T-D			1
HDS0108	D15	Diode	1S2075K			1
HDH0040	D38	Diode	HZ7BT-D			1
HDS0108	D106	Diode	1S2075 T-D			1
HDS0108	D115	Diode	1S2075K			1
HDH0040	D138	Diode	HZ7BT-D			1
HDS0108	D221	Diode	1S2075 T-D			1
HDS0108	D222	Diode	1S2075 T-D			1
HDS0108	D224	Diode	1S2075 T-D			1
HDS0108	D225	Diode	1S2075 T-D			1
HDS0108	D226	Diode	1S2075 T-D			1
HDS0108	D227	Diode	1S2075 T-D			1
HDS0108	D228	Diode	1S2075 T-D			1
HDS0108	D233	Diode	1S2075 T-D			1
HDS0108	D246	Diode	1S2075 T-D			1
HDS0108	D247	Diode	1S2075 T-D			1
HDS0108	D248	Diode	1S2075 T-D			1

Part Code	Symbol	Description			Q'ty
HDS0108	D249	Diode	1S2075 T-D		1
HDS0108	D262	Diode	1S2075 T-D		1
HDS0108	D263	Diode	1S2075 T-D		1
HDS0108	D264	Diode	1S2075 T-D		1
HDS0108	D265	Diode	1S2075 T-D		1
HDS0108	D269	Diode	1S2075(K)		1
HDS0108	D272	Diode	1S2075 T-D		1
HDS0108	D273	Diode	1S2075(K)		1
HDS0108	D278	Diode	1S2075(K)		1
HDS0108	D279	Diode	1S2075(K)		1
HDS0108	D280	Diode	1S2075 T-D		1
HDS0108	D281	Diode	1S2075 T-D		1
HDS0180	D282	Diode	1S2075 T-D		1
HDS0108	D283	Diode	1S2075 T-D		1
HDS0108	D284	Diode	1S2075 T-D		1
HDS0108	D296	Diode	1S2075 T-D		1
ILT0041	IC6	IC, Analog	TL071CP		1
ILT0041	IC106	IC, Analog	TL071CP		1
IDH0680	IC245	IC, Digital	HD74LS09P		1
IDH0713	IC281	IC, Digital	HD74LS109AP		1
TLF0051	L71	Coil	FL-3H 0.33μH	±20%	1
HX841221	L74A	Core	L1-RH0303		1
HX841221	L75A	Core	L1-RH0303		1
TLF0052	L171	Coil	FL-3H R47M		1
TLF0028	L221A	Coil	FL-3H 10μH	±10%	1
HX841221	L221B	Core	L1-RH0303		1
TLF0028	L225A	Coil	FL-3H 10μH	±10%	1
HX841221	L225B	Core	L1-RH0303		1
TLF0028	L246A	Coil	FL-3H 10μH	±10%	1
HX841221	L246B	Core	L1-RH0303		1
TLF0028	L262A	Coil	FL-3H 10μH	±10%	1
HX841221	L262B	Core	L1-RH0303		1
TLF0052	L279	Coil	FL-3H 0.47μH	±20%	1
TLF0052	L280	Coil	FL-3H 0.47μH	±20%	1
JBX0470	P80	Connector	171825-6		1
JBX0704	P100	Connector	171825-4		1
JBX0704	P200	Connector	171825-4		1
JBX0704	P279	Connector	171825-4		1
JBX0470	P280	Connector	171825-6		1
JBX0468	P287	Connector	171825-3		1
JBX0704	P300	Connector	171825-4		1
JBX0704	P301	Connector	171825-4		1
116456	PEF495	PCB	PEF-495		1
JBX0468	P499	Connector	171825-3		1
116458	PEF530	PCB	PEF-499		R
RCR3004	R3	R, Carbon	1/4W 10Ω	±5%	1
RCR3003	R4	R, Carbon	1/4W 6.8Ω	±5%	1
RME0828	R5	R, Metal	1/4W 500kΩ	±0.5%	1
RME0828	R6	R, Metal	1/4W 500kΩ	±0.5%	1
RME0680	R7	R, Metal	1/4W 22.1kΩ	±1%	1
8348450H	RV7	VR, Metal	CR29R 22kΩ		1
RCR3068	R8	R, Carbon	1/4W 4.7kΩ	±5%	1
RCR3036	R9	R, Carbon	1/4W 220Ω	±5%	1
RCR3036	R10	R, Carbon	1/4W 220Ω	±5%	1
RCR3060	R11	R, Carbon	1/4W 2.2kΩ	±5%	1
RCR3076	R12	R, Carbon	1/4W 10kΩ	±5%	1
RCR3064	R13	R, Carbon	1/4W 3.3kΩ	±5%	1
RCR3036	R14	R, Carbon	1/4W 220Ω	±5%	1
RSE0434	R15	R, Solid	1/4W 10MΩ	±5%	1
RCR3028	R16	R, Carbon	1/4W 100Ω	±5%	1
RCR3048	R17	R, Carbon	1/4W 680Ω	±5%	1
RCR3012	R18	R, Carbon	1/4W 22Ω	±5%	1
RME0707	R21	R, Metal	1/4W 4.00kΩ	±0.5%	1

Part Code	Symbol	Description	Q'ty
RME0829	R22	R, Metal 1/4W 180kΩ ±0.5%	1
RCR3012	R23	R, Carbon 1/4W 22Ω ±5%	1
RCR3012	R24	R, Carbon 1/4W 22Ω ±5%	1
RME0830	R25	R, Metal 1/4W 16.0kΩ ±0.5%	1
RCR3012	R27	R, Carbon 1/4W 22Ω ±5%	1
RME0831	R28	R, Metal 1/4W 20.0Ω ±0.5%	1
RME0659	R28B	R, Metal 1/4W 274Ω ±1%	1
RCR3052	R31	R, Carbon 1/4W 1.0kΩ ±5%	1
RME0661	R32	R, Metal 1/4W 562Ω ±1%	1
RCR3046	R33	R, Carbon 1/4W 560Ω ±5%	1
HX8348450C	RV33	VR, Metal CR29R 470Ω	1
RCR3064	R34	R, Carbon 1/4W 3.3kΩ ±5%	1
RCR3262	R34A	R, Carbon 1/4W 220Ω ±5%	1
RME0703	R35	R, Metal 1/4W 475Ω ±0.5%	1
RCR3036	R36	R, Carbon 1/4W 220Ω ±5%	1
RCR3060	R37	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3056	R38	R, Carbon 1/4W 1.5kΩ ±5%	1
RCR3020	R39	R, Carbon 1/4W 47Ω ±5%	1
RCR3028	R41	R, Carbon 1/4W 100Ω ±5%	1
RCR3028	R40	R, Carbon 1/4W 100Ω ±5%	1
RCR3012	R42	R, Carbon 1/4W 22Ω ±5%	1
RCR3003	R43	R, Carbon 1/4W 6.8Ω ±5%	1
H3142145	RV43	SW, Rotary ATT SW FOR V-1050 W-RV	1
RCR3028	R44	R, Carbon 1/4W 100Ω ±5%	1
RME0658	R45	R, Metal 1/4W 332Ω ±1%	1
RCR3034	R46	R, Carbon 1/4W 180Ω ±5%	1
RME0709	R51	R, Metal 1/4W 150Ω ±0.5%	1
RME0832	R52	R, Metal 1/4W 75.0Ω ±0.5%	1
RME0832	R53	R, Metal 1/4W 75.0Ω ±0.5%	1
RCR3010	R55	R, Carbon 1/4W 18Ω ±5%	1
RCR3024	R57	R, Carbon 1/4W 68Ω ±5%	1
RCR3012	R58	R, Carbon 1/4W 22Ω ±5%	1
RCR3076	R59	R, Carbon 1/4W 10kΩ ±5%	1
RME0668	R61	R, Metal 1/4W 2.21kΩ ±1%	1
RME0668	R62	R, Metal 1/4W 2.21kΩ ±1%	1
RCR3012	R63	R, Carbon 1/4W 22Ω ±5%	1
HX8348450A	RV63	VR, Metal CR29R 100Ω	1
RME0648	R64	R, Metal 1/4W 47.5Ω ±1%	1
RCR3076	R65	R, Carbon 1/4W 10kΩ ±5%	1
RCR3016	R66	R, Carbon 1/4W 33Ω ±5%	1
RCR3046	R67	R, Carbon 1/4W 560Ω ±5%	1
RCR3020	R67A	R, Carbon 1/4W 47Ω ±5%	1
RCR3046	R68	R, Carbon 1/4W 560Ω ±5%	1
RCR3020	R69	R, Carbon 1/4W 47Ω ±5%	1
RME0672	R70	R, Metal 1/4W 4.75kΩ ±1%	1
RME0672	R70A	R, Metal 1/4W 4.75kΩ ±1%	1
RCR3032	R71	R, Carbon 1/4W 150Ω ±5%	1
RDE0013	RV71	VR, Carbon EVH-Y13K20B13	1
RCR3032	R72	R, Carbon 1/4W 150Ω ±5%	1
RME0663	R73	R, Metal 1/4W 825Ω ±1%	1
RCR3238	R73A	R, Carbon 1/4W 22Ω ±5%	1
H8348450H	RV73	VR, Metal CR29R 22kΩ	1
RME0663	R74	R, Metal 1/4W 825Ω ±1%	1
RCR3036	R75	R, Carbon 1/4W 220Ω ±5%	1
RCR3012	R75A	R, Carbon 1/4W 22Ω ±5%	1
RCR3102	R82	R, Carbon 1/4W 220kΩ ±5%	1
RCR3028	R84	R, Carbon 1/4W 100Ω ±5%	1
RCR3028	R85	R, Carbon 1/4W 100Ω ±5%	1
RME0648	R88	R, Metal 1/4W 47.5Ω ±1%	1
RCR3044	R90	R, Carbon 1/4W 470Ω ±5%	1
RCR3044	R91	R, Carbon 1/4W 470Ω ±5%	1
RCR3004	R92	R, Carbon 1/4W 10Ω ±5%	1

Part Code	Symbol	Description	Q'ty
RME0661	R93	R, Metal 1/4W 562Ω ±1%	1
RME0661	R94	R, Metal 1/4W 562Ω ±1%	1
RME0659	R95	R, Metal 1/4W 392Ω ±1%	1
RME0656	R96	R, Metal 1/4W 221Ω ±1%	1
RME0656	R96A	R, Metal 1/4W 221Ω ±1%	1
RCR3056	R97	R, Carbon 1/4W 1.5kΩ ±5%	1
RCR3056	R97A	R, Carbon 1/4W 1.5kΩ ±5%	1
RME0737	R98	R, Metal 1/4W 71.5Ω ±1%	1
RME0737	R98A	R, Metal 1/4W 71.5Ω ±1%	1
RME0668	R99A	R, Metal 1/4W 2.21kΩ ±1%	1
RME0668	R99B	R, Metal 1/4W 2.21kΩ ±1%	1
RCR3004	R103	R, Carbon 1/4W 10Ω ±5%	1
RCR3003	R104	R, Carbon 1/4W 6.8Ω ±5%	1
RME0828	R105	R, Metal 1/4W 500kΩ ±0.5%	1
RME0828	R106	R, Metal 1/4W 500kΩ ±0.5%	1
RME0680	R107	R, Metal 1/4W 22.1kΩ ±1%	1
H8348450H	RV107	VR, Metal CR29R 22kΩ	1
RCR3068	R108	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3036	R109	R, Carbon 1/4W 220Ω ±5%	1
RCR3036	R110	R, Carbon 1/4W 220Ω ±5%	1
RCR3060	R111	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3076	R112	R, Carbon 1/4W 10kΩ ±5%	1
RCR3064	R113	R, Carbon 1/4W 3.3kΩ ±5%	1
RCR3036	R114	R, Carbon 1/4W 220Ω ±5%	1
RSE0434	R115	R, Solid 1/4W 10MΩ ±5%	1
RCR3028	R116	R, Carbon 1/4W 100Ω ±5%	1
RCR3048	R117	R, Carbon 1/4W 680Ω ±5%	1
RCR3012	R118	R, Carbon 1/4W 22Ω ±5%	1
RME0707	R121	R, Metal 1/4W 4.00kΩ ±0.5%	1
RME0829	R122	R, Metal 1/4W 180kΩ ±0.5%	1
RCR3012	R123	R, Carbon 1/4W 22Ω ±5%	1
RCR3012	R124	R, Carbon 1/4W 22Ω ±5%	1
RME0830	R125	R, Metal 1/4W 16kΩ ±0.5%	1
RCR3012	R127	R, Carbon 1/4W 22Ω ±5%	1
RME0831	R128	R, Metal 1/4W 20.0Ω ±0.5%	1
RME0659	R128B	R, Metal 1/4W 274Ω ±1%	1
RCR3052	R131	R, Carbon 1/4W 1.0kΩ ±5%	1
RME0661	R132	R, Metal 1/4W 562Ω ±1%	1
RCR3046	R133	R, Carbon 1/4W 560Ω ±5%	1
HX8348450C	RV133	VR, Metal CR29R 470Ω	1
RCR3064	R134	R, Carbon 1/4W 3.3kΩ ±5%	1
RME0703	R135	R, Metal 1/4W 475Ω ±0.5%	1
RCR3036	R136	R, Carbon 1/4W 220Ω ±5%	1
RCR3060	R137	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3056	R138	R, Carbon 1/4W 1.5kΩ ±5%	1
RCR3028	R141	R, Carbon 1/4W 100Ω ±5%	1
RCR3012	R142	R, Carbon 1/4W 22Ω ±5%	1
RCR3003	R143	R, Carbon 1/4W 6.8Ω ±5%	1
H3142145	RV143	SW, Rotary ATT SW FOR V-1050 W/RV	R
RCR3028	R144	R, Carbon 1/4W 100Ω ±5%	1
RME0658	R145	R, Metal 1/4W 332Ω ±1%	1
RCR3034	R146	R, Carbon 1/4W 180Ω ±5%	1
RME0709	R151	R, Metal 1/4W 150Ω ±0.5%	1
RME0832	R152	R, Metal 1/4W 75.0Ω ±0.5%	1
RME0832	R153	R, Metal 1/4W 75.0Ω ±0.5%	1
RCR3010	R155	R, Carbon 1/4W 18Ω ±5%	1
RCR3024	R157	R, Carbon 1/4W 68Ω ±5%	1
RCR3012	R158	R, Carbon 1/4W 22Ω ±5%	1
RCR3076	R159	R, Carbon 1/4W 10kΩ ±5%	1
RCR3030	R160	R, Carbon 1/4W 120Ω ±5%	1
HX8348450A	RV160	VR, Metal CR29R 100Ω	1
RME0668	R161	R, Metal 1/4W 2.21kΩ ±1%	1

Part Code	Symbol	Description	Q'ty
RME0668	R162	R, Metal 1/4W 2.21kΩ ±1%	1
RCR3012	R163	R, Carbon 1/4W 22Ω ±5%	1
HX8348450A	RV163	VR, Metal CR29R 100Ω	1
RME0650	R164	R, Metal 1/4W 68.1Ω ±1%	1
RCR3076	R165	R, Carbon 1/4W 10kΩ ±5%	1
RCR3016	R166	R, Carbon 1/4W 33Ω ±5%	1
RCR3046	R167	R, Carbon 1/4W 560Ω ±5%	1
RCR3020	R167A	R, Carbon 1/4W 47Ω ±5%	1
RCR3046	R168	R, Carbon 1/4W 560Ω ±5%	1
RCR3020	R169	R, Carbon 1/4W 47Ω ±5%	1
RME0672	R170	R, Metal 1/4W 4.75kΩ ±1%	1
RME0672	R170A	R, Metal 1/4W 4.75kΩ ±1%	1
RCR3032	R171	R, Carbon 1/4W 150Ω ±5%	1
RDE0013	RV171	VR, Carbon EVH-Y13K20B13	1
RCR3032	R172	R, Carbon 1/4W 150Ω ±5%	1
RME0663	R173	R, Metal 1/4W 825Ω ±1%	1
H8348450H	RV173	VR, Metal CR29R 22Ω	1
RME0663	R174	R, Metal 1/4W 825Ω ±1%	1
RCR3036	R175	R, Carbon 1/4W 220Ω ±5%	1
RCR3036	R176	R, Carbon 1/4W 220Ω ±5%	1
RCR3060	R177	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3012	R177A	R, Carbon 1/4W 22Ω ±5%	1
RCR3060	R178	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3012	R178A	R, Carbon 1/4W 22Ω ±5%	1
RCR3102	R182	R, Carbon 1/4W 220kΩ ±5%	1
RCR3028	R184	R, Carbon 1/4W 100Ω ±5%	1
RCR3028	R185	R, Carbon 1/4W 100Ω ±5%	1
RME0648	R188	R, Metal 1/4W 47.5Ω ±1%	1
RCR3044	R190	R, Carbon 1/4W 470Ω ±5%	1
RCR3044	R191	R, Carbon 1/4W 470Ω ±5%	1
RCR3004	R192	R, Carbon 1/4W 10Ω ±5%	1
RME0661	R193	R, Metal 1/4W 562Ω ±1%	1
RME0661	R194	R, Metal 1/4W 562Ω ±1%	1
RME0659	R195	R, Metal 1/4W 392Ω ±1%	1
RME0656	R196	R, Metal 1/4W 221Ω ±1%	1
RME0656	R196A	R, Metal 1/4W 221Ω ±1%	1
RCR3056	R197	R, Carbon 1/4W 1.5kΩ ±5%	1
RCR3056	R197A	R, Carbon 1/4W 1.5kΩ ±5%	1
RME0737	R198	R, Metal 1/4W 71.5Ω ±1%	1
RME0737	R198A	R, Metal 1/4W 71.5Ω ±1%	1
RME0668	R199A	R, Metal 1/4W 2.21kΩ ±1%	1
RME0668	R199B	R, Metal 1/4W 2.21kΩ ±1%	1
RCR3266	R221A	R, Carbon 1/4W 330kΩ ±5%	1
RCR3020	R221	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R222	R, Carbon 1/4W 47Ω ±5%	1
RCR3266	R225A	R, Carbon 1/4W 330kΩ ±5%	1
RCR3020	R225	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R226	R, Carbon 1/4W 47Ω ±5%	1
RCR3062	R231	R, Carbon 1/4W 2.7kΩ ±5%	1
HX8348450	RV231	VR, Metal CR29R 4.7kΩ	1
RCR3060	R232	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3030	R233	R, Carbon 1/4W 120Ω ±5%	1
RCR3030	R234	R, Carbon 1/4W 120Ω ±5%	1
RME0655	R237	R, Metal 1/4W 182Ω ±1%	1
RME0000	R238	R, Metal	
RME0665	R241	R, Metal 1/4W 1.21kΩ ±1%	1
RME0665	R242	R, Metal 1/4W 1.21kΩ ±1%	1
RCR3036	R243	R, Carbon 1/4W 220Ω ±5%	1
RCR3036	R244	R, Carbon 1/4W 220Ω ±5%	1
RCR3238	R245	R, Carbon 1/4W 22Ω ±5%	1
RCR3266	R246A	R, Carbon 1/4W 330kΩ ±5%	1
RCR3060	R248	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3052	R249	R, Carbon 1/4W 1.0kΩ ±5%	1

Part Code	Symbol	Description	Q'ty
RDC0003	RV249	VR, Metal CR19R 4.7kΩ	1
RCR3030	R250	R, Carbon 1/4W 120Ω ±5%	1
RCR3030	R252	R, Carbon 1/4W 120Ω ±5%	1
RME0655	R254	R, Metal 1/4W 182Ω ±1%	1
RME0665	R256	R, Metal 1/4W 1.21kΩ ±1%	1
RME0665	R257	R, Metal 1/4W 1.21kΩ ±1%	1
RCR3036	R258	R, Carbon 1/4W 220Ω ±5%	1
RCR3036	R259	R, Carbon 1/4W 220Ω ±5%	1
RCR3266	R262A	R, Carbon 1/4W 330kΩ ±5%	1
RCR3060	R265	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3076	R266	R, Carbon 1/4W 10kΩ ±5%	1
RCR3072	R267	R, Carbon 1/4W 6.8kΩ ±5%	1
RCR3076	R268	R, Carbon 1/4W 10kΩ ±5%	1
RME0669	R269	R, Metal 1/4W 2.67kΩ ±1%	1
RME0669	R270	R, Metal 1/4W 2.67kΩ ±1%	1
RME0656	R271	R, Metal 1/4W 221Ω ±1%	1
RCR3032	R271A	R, Carbon 1/4W 150Ω ±5%	1
RME0656	R272	R, Metal 1/4W 221Ω ±1%	1
RME0664	R273	R, Metal 1/4W 1.00kΩ ±1%	1
RME0664	R274	R, Metal 1/4W 1.00kΩ ±1%	1
RME0664	R275	R, Metal 1/4W 1.00kΩ ±1%	1
RCR3016	R276	R, Carbon 1/4W 33Ω ±5%	1
RCR0827	R277	R, Metal 1/4W 750Ω ±1%	1
RME0827	R278	R, Metal 1/4W 750Ω ±1%	1
RME0713	R279	R, Metal 1/4W 86.6Ω ±0.5%	1
RME0713	R280	R, Metal 1/4W 86.6Ω ±0.5%	1
RCR3040	R281	R, Carbon 1/4W 330Ω ±5%	1
RCR3012	R282	R, Carbon 1/4W 22Ω ±5%	1
RME0659	R283	R, Metal 1/4W 392Ω ±1%	1
RME0659	R284	R, Metal 1/4W 392Ω ±1%	1
RCR3028	R285	R, Carbon 1/4W 100Ω ±5%	1
RCR3028	R286	R, Carbon 1/4W 100Ω ±5%	1
RCR3032	R286A	R, Carbon 1/4W 150Ω ±5%	1
RCR3076	R287	R, Carbon 1/4W 10kΩ ±5%	1
RCR3032	R288	R, Carbon 1/4W 150Ω ±5%	1
RME0666	R289	R, Metal 1/4W 1.50kΩ ±1%	1
RME0670	R290	R, Metal 1/4W 3.32kΩ ±1%	1
RME0663	R291	R, Metal 1/4W 825Ω ±1%	1
RME0663	R291B	R, Metal 1/4W 825Ω ±1%	1
RME0674	R292	R, Metal 1/4W 4.75kΩ ±1%	1
RME0799	R293	R, Metal 1/4W 2.43kΩ ±1%	1
RME0671	R294	R, Metal 1/4W 3.92kΩ ±1%	1
RME0672	R295	R, Metal 1/4W 4.75kΩ ±1%	1
RCR3068	R296	R, Carbon 1/4W 4.7kΩ ±5%	1
RME0666	R297	R, Metal 1/4W 1.50kΩ ±1%	1
H*3142145	S2	SW, Rotary ATT SW FOR V-1050 W/RV	1
H3142145	S102	SW, Rotary ATT SW FOR V-1050 W/RV	1
HX8311793C	S178	SW, Push UEG22-2	1
H3159320	S279	SW, PB SPJR Type	1
SSL0056	S281	SW, Lever SLA225	1
HX8311793	S282	SW, Push UEG22-2	1
HTK0051	TR4	Transistor 2SK55D	1
HTC0557	TR14	Transistor 2SC1674K	1
HTC0557	TR36	Transistor 2SC1674K	1
HTA0099	TR38	Transistor 2SA781K	1
HTC0338	TR42	Transistor 2SC1906	1
HTC0400	TR58	Transistor 2SC2026	1
HTC0400	TR66	Transistor 2SC2026	1
HTA0099	TR73	Transistor 2SA781K	1
HTA0099	TR74	Transistor 2SA781K	1
HTC0338	TR86	Transistor 2SC1906	1
HTC0338	TR87	Transistor 2SC1906	1

Part Code	Symbol	Description		Q'ty
HTA0099	TR93	Transistor	2SA781K	1
HTA0099	TR94	Transistor	2SA781K	1
HTK0051	TR104	Transistor	2SK55D	1
HTC0557	TR114	Transistor	2SC1674K	1
HTC0557	TR136	Transistor	2SC1674K	1
HTA0099	TR138	Transistor	2SA781K	1
HTC0338	TR142	Transistor	2SC1906	1
HTC0400	TR158	Transistor	2SC2026	1
HTC0400	TR166	Transistor	2SC2026	1
HTA0099	TR173	Transistor	2SA781K	1
HTA0099	TR174	Transistor	2SA781K	1
HTA0099	TR178	Transistor	2SA781K	1
HTA0099	TR179	Transistor	2SA781K	1
HTC0338	TR186	Transistor	2SC1906	1
HTC0338	TR187	Transistor	2SC1906	1
HTA0099	TR193	Transistor	2SA781K	1
HTA0099	TR194	Transistor	2SA781K	1
HTA0099	TR243	Transistor	2SA781K	1
HTA0099	TR244	Transistor	2SA781K	1
HTA0099	TR258	Transistor	2SA781K	1
HTA0099	TR259	Transistor	2SA781K	1
HTA0224	TR265	Transistor	2SA1029D	1
HTC0192	TR268	Transistor	2SC641K-C	1
HTC0496	TR271	Transistor	2SC1747	1
HTC0496	TR272	Transistor	2SC1747	1
HTC0338	TR285	Transistor	2SC1906	1
HTC0338	TR286	Transistor	2SC1906	1
HTC0148	TR291	Transistor	2SC458C	1
HTC0148	TR292	Transistor	2SC458C	1
ETS0005		Terminal	FT-E-12	1
ETS0005		Terminal	FT-E-12	1

PEF-496F PCB

Part Code	Symbol	Description				Q'ty
CCC1007	C202	C, Ceramic	50V	22 pF	±5%	1
CCC1002	C203	C, Ceramic	50V	10 pF	±0.5pF	1
CCC1014	C206	C, Ceramic	50V	47 pF	±5%	1
CCC1029	C207	C, Ceramic	50V	1000 pF	+80 -20%	1
CEC0175	C211	C, AL Elyc	25V	10μF		1
CEC0170	C212	C, AL Elyc	16V	47μF		1
CEC0175	C213	C, AL Elyc	25V	10μF		1
CCC0997	C214	C, Ceramic	50V	3 pF	±0.25pF	1
CCC1002	C215	C, Ceramic	50V	10 pF	±0.5pF	1
CEC0175	C219	C, AL Elyc	25V	10μF		1
CCC1015	C216	C, Ceramic	50V	56 pF	±5%	1
CCC1002	C302	C, Ceramic	50V	10 pF	±0.5pF	1
CCC1002	C303	C, Ceramic	50V	10 pF	±0.5pF	1
CCC1029	C306	C, Ceramic	50V	1000 pF	+80 -20%	1
CCC1029	C307	C, Ceramic	50V	1000 pF	+80 -20%	1
CEC0175	C311	C, AL Elyc	25V	10μF		1

Part Code	Symbol	Description				Q'ty
CEC0175	C313	C, AL Elyc	25V	10μF		1
CCC0997	C314	C, Ceramic	50V	3 pF	±0.25pF	1
	C315	C, Ceramic	50V	10 pF		1
CEC0175	C319	C, AL Elyc	25V	10μF		1
CCC1015	C316	C, Ceramic	50V	56 pF	±5%	1
CCC1002	C420	C, Ceramic	50V	10 pF	±0.5pF	1
CCD0281	C421	C, Ceramic	500V	33 pF	±5%	1
CCC0999	C424	C, Ceramic	50V	5 pF	±0.25pF	1
CCC1013	C425	C, Ceramic	50V	39 pF	±5%	1
CCC1160	C426	C, Ceramic	50V	330 pF	±10%	1
CCC0996	C429	C, Ceramic	50V	5 pF	±0.25pF	1
CCC0996	C429A	C, Ceramic	50V	2 pF	±0.25pF	1
CCC0999	C421A	C, Ceramic	50V	5 pF	±0.25pF	1
CCD0286	C431	C, Ceramic	500V	1000 pF	+100 -0%	1
CQX0071	C432	C, Plastic	600V	22000 pF	±10%	1
CEC0175	C437	C, AL Elyc	25V	10μF		1
CCC1030	C438	C, Ceramic	50V	10000 pF	+80 -20%	1
CEC0175	C439	C, AL Elyc	25V	10μF		1
CQA0101	C443	C, Plastic	50V	47000 pF	±10%	1
CCC1133	C444	C, Ceramic	50V	1 pF	±0.25pF	1
CCC1007	C445	C, Ceramic	50V	22 pF	±5%	1
CQA0101	C446	C, Plastic	50V	47000 pF	±10%	1
CCC1030	C447	C, Ceramic	50V	10000 pF	+80 -20%	1
CCC1030	C447A	C, Ceramic	50V	10000 pF	+80 -20%	1
CCC1030	C451	C, Ceramic	50V	10000 pF	+80 -20%	1
CCC1030	C453	C, Ceramic	50V	10000 pF	+80 -20%	1
CCC1034	C455	C, Ceramic	50V	68 pF	±5%	1
CCC0999	C455A	C, Ceramic	50V	5 pF	±0.25pF	1
CET0031	C456	C, AL Elyc	50V	1μF	Bi-Pole	1
CEC0176	C457	C, AL Elyc	25V	10μF	NP	1
CCC1029	C458	C, Ceramic	50V	1000 pF	±10%	1
CCC0996	C462	C, Ceramic	50V	2 pF	±0.25pF	1
CCC0996	C463	C, Ceramic	50V	2 pF	±0.25pF	1
CQA0095	C465	C, Plastic	50V	4700 pF	±10%	1
CQA0095	C468	C, Plastic	50V	4700 pF	±10%	1
CCC1030	C470	C, Plastic	50V	0.1μF	±10%	1
CCC1030	C470B	C, Ceramic	50V	10000 pF	+80 -20%	1
CQA0091	C471	C, Plastic	50V	1000 pF	±10%	1
CCC1014	C476	C, Ceramic	50V	47 pF	±5%	1
CCC1025	C483	C, Ceramic	50V	100 pF	±10%	1
CEC0175	C487	C, AL Elyc	25V	10μF		1
CEC0170	C488	C, AL Elyc	16V	47μF		1
CEC0175	C489	C, AL Elyc	25V	10μF		1
CCC1030	C490	C, Ceramic	50V	10000 pF	+80 -20%	1
CCC1030	C492	C, Ceramic	50V	10000 pF	+80 -20%	1
CQA0097	C492A	C, Plastic	50V	10000 pF	±10%	1
CCC1030	C493	C, Ceramic	50V	10000 pF	+80 -20%	1
CEC0175	C494	C, AL Elyc	25V	10μF		1
CEC0176	C496	C, AL Elyc	25V	10μF		1
CCD0281	C601	C, Ceramic	500V	33 pF	±5%	1
CCD0277	C603	C, Ceramic	500V	10 pF	±0.5pF	1
CQX0071	C606	C, Plastic	600V	22000 pF	±10%	1
CCC1030	C607	C, Ceramic	50V	10000pF	+80 -20%	1
CEC0175	C608	C, AL Elyc	25V	10μF		1
CCC1030	C609	C, Ceramic	50V	10000 pF	+80 -20%	1
CEC0175	C610	C, AL Elyc	25V	10μF		1
CCC1030	C612	C, Ceramic	50V	10000 pF	+80 -20%	1
CCC1030	C617	C, Ceramic	50V	10000 pF	+80 -20%	1

Part Code	Symbol	Description				Q'ty
CCC1030	C618	C, Ceramic	50V	10000 pF	+80 −20%	1
CCC1025	C619	C, Ceramic	50V	100 pF	±10%	1
CCC1133	C619A	C, Ceramic	50V	1 pF		1
CET0031	C622	C, AL Elyc	50V	1 μF		1
CCC1003	C633	C, Ceramic	50V	12 pF	±5%	1
CCC0996	C633A	C, Ceramic	50V	2 pF	±0.25pF	1
CCC1030	C634	C, Ceramic	50V	10000 pF	+80 −20%	1
CCC1025	C641	C, Ceramic	50V	100 pF	±10%	1
CCC1030	C652	C, Ceramic	50V	10000 pF	+80 −20%	1
CCC1030	C693	C, Ceramic	50V	10000 pF	+80 −20%	1
CCC1030	C694	C, Ceramic	50V	10000 pF	+80 −20%	1
CCC1030	C694A	C, Ceramic	50V	10000 pF	+80 −20%	1
CCC1030	C695	C, Ceramic	50V	10000 pF	+80 −20%	1
HX3142155	CV423	C, Variable	ECV-1ZW 20x93			1
HX3142155C	CV603	C, Variable	ECV-1ZW 20x93			1
HDS0108	D211	Diode	1S2075K			1
HDS0108	D311	Diode	1S2075K			1
HDS0108	D431	Diode	1S2075 T-D			1
HDS0108	D432	Diode	1S2075 T-D			1
HDM0051	D434	Diode	MA161			1
HDS0108	D435	Diode	1S2075 T-D			1
HDS0108	D436	Diode	1S2075 T-D			1
HDS0108	D447A	Diode	1S2075 T-D			1
HDS0108	D470	Diode	1S2075 T-D			1
HDS0408	D488	Diode	SR503D with mount(RED)			1
HDS0108	D490	Diode	1S2075 T-D			1
HDS0108	D491	Diode	1S2075 T-D			1
HDS0108	D492	Diode	1S2075 T-D			1
HDM0051	D607	Diode	MA161			1
HDS0108	D608	Diode	1S2075 T-D			1
HDS0108	D609	Diode	1S2075 T-D			1
HDS0108	D612	Diode	1S2075 T-D			1
HDS0108	D692	Diode	1S2075 T-D			1
ILT0041	IC430	IC, Analog	TL071CP			1
ILC0069	IC450	IC, Analog	CA3102E			1
IDH0008	IC460	Digital IC	HD10131			1
IDH0005	IC461	IC	HD10116			1
IDH0002	IC462	Digital IC	HD10102			1
ILH0096	IC463	IC	HA17901P			1
ILH0088	IC470	Analog IC	HA17741PS			1
ILC0069	IC620	IC, Analog	CA3102E			1
IDH0005	IC621	IC	HD10116			1
IDH0002	IC622	Digital IC	HD10102			1
IDH0008	IC623	Digital IC	HD10131			1
IDH0002	IC651	Digital IC	HD10102			1
TLF0019	L212	Coil	FL-5H 330K			1
TLF0003	L458	Coil	FL-3H R22M			1
TLF0003	L459	Coil	FL-3H R22M			1
TLF0003	L623	Coil	FL-3H 0.22μH		±20%	1
TLF0003	L624	Coil	FL-3H 0.22μH		±20%	1
JBX1712	P400	Connector	1-171826-0			1
JBX0704	P401	Connector	171825-4			1
JBX0704	P402	Connector	171825-4			1
JBX0704	P403	Connector	171825-4			1
JBX0704	P404	Connector	171825-4			1
JBX1710	P410	Connector	171826-3			1
JBX0468	P422	Connector	171825-3			1
JBX1711	P460	Connector	171826-6			1
JBX1710	P488	Connector	171826-3			1
JBX0468	P602	Connector	171825-3			1
H116457	PEF496	PCB	PEF-496-497			R

Part Code	Symbol	Description				Q'ty.
RME0652	R201	R, Metal	1/4W	100Ω	±1%	1
RME0652	R201B	R, Metal	1/4W	100Ω	±1%	1
RCR3044	R202	R, Carbon	1/4W	470kΩ	±5%	1
RME0653	R203	R, Metal	1/4W	121Ω	±1%	1
RME0665	R204	R, Metal	1/4W	1.21kΩ	±1%	1
RME0665	R205	R, Metal	1/4W	1.21kΩ	±1%	1
RCR3038	R206	R, Carbon	1/4W	270Ω	±5%	1
RCR3032	R207	R, Carbon	1/4W	150Ω	±5%	1
RCR3042	R208	R, Carbon	1/4W	390Ω	±5%	1
RME0799	R206A	R, Metal	1/4W	2.43kΩ	±1%	1
RME0708	R211	R, Carbon	1/4W	300Ω	±5%	1
RME0659	R214	R, Metal	1/4W	392Ω	±1%	1
RCR3028	R215	R, Carbon	1/4W	100Ω	±5%	1
RCR3028	R216	R, Carbon	1/4W	100Ω	±5%	1
RCR3052	R217	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3052	R219	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3012	R220	R, Carbon	1/4W	22Ω	±5%	1
RME0652	R301	R, Metal	1/4W	100Ω	±1%	1
RME0652	R301B	R, Metal	1/4W	100Ω	±1%	1
RCR3052	R302	R, Carbon	1/4W	1.0kΩ	±5%	1
RME0653	R303	R, Metal	1/4W	121Ω	±1%	1
RME0665	R304	R, Metal	1/4W	1.21kΩ	±1%	1
RME0665	R305	R, Metal	1/4W	1.21kΩ	±1%	1
RCR3036	R306	R, Carbon	1/4W	220Ω	±5%	1
RCR3032	R307	R, Carbon	1/4W	150Ω	±5%	1
RME0708	R311	R, Carbon	1/4W	300Ω	±5%	1
RME0659	R314	R, Metal	1/4W	392Ω	±1%	1
RCR3028	R315	R, Carbon	1/4W	100Ω	±5%	1
RCR3028	R316	R, Carbon	1/4W	100Ω	±5%	1
RCR3052	R317	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3052	R319	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3012	R320	R, Carbon	1/4W	22Ω	±5%	1
RCR3034	R421	R, Carbon	1/4W	180Ω	±5%	1
RSE0434	R421A	R, Solid	1/4W	10MΩ	±5%	1
RCR3104	R422	R, Carbon	1/4W	470kΩ	±5%	1
RCR3020	R423	R, Carbon	1/4W	47Ω	±5%	1
RCR3104	R424	R, Carbon	1/4W	470kΩ	±5%	1
RCR3054	R425	R, Carbon	1/4W	1.2kΩ	±5%	1
RCR3028	R426	R, Carbon	1/4W	100Ω	±5%	1
RME0657	R427	R, Metal	1/4W	267Ω	±1%	1
RCR3094	R427A	R, Carbon	1/4W	56kΩ	±5%	1
RCR3032	R428	R, Carbon	1/4W	150Ω	±5%	1
RCR3040	R429	R, Carbon	1/4W	330Ω	±5%	1
RME0668	R429A	R, Metal	1/4W	2.21kΩ	±1%	1
RME0668	R429B	R, Metal	1/4W	2.21kΩ	±1%	1
RME0652	R429C	R, Metal	1/4W	100Ω	±1%	1
RME0652	R429D	R, Metal	1/4W	100Ω	±1%	1
RCR3064	R430	R, Carbon	1/4W	3.3kΩ	±5%	1
RME0722	R431	R, Metal	1/4W	392kΩ	±1%	1
RCR3068	R431A	R, Carbon	1/4W	4.7kΩ	±5%	1
RME0688	R432	R, Metal	1/4W	100kΩ	±1%	1
RSE0434	R433	R, Solid	1/4W	10MΩ	±5%	1
RCR3020	R434	R, Carbon	1/4W	47Ω	±5%	1
RCR3072	R435	R, Carbon	1/4W	6.8kΩ	±5%	1
RCR3076	R436	R, Carbon	1/4W	10kΩ	±5%	1
RCR3040	R437	R, Carbon	1/4W	330Ω	±5%	1
RCR3028	R438	R, Carbon	1/4W	100Ω	±5%	1
RCR3060	R439	R, Carbon	1/4W	2.2kΩ	±5%	1
RCR3072	R440	R, Carbon	1/4W	6.8kΩ	±5%	1
RCR3080	R440B	R, Carbon	1/4W	15kΩ	±5%	1
RCR3080	R441	R, Carbon	1/4W	15kΩ	±5%	1
RME0688	R442	R, Metal	1/4W	100kΩ	±1%	1
RCR3028	R443	R, Carbon	1/4W	100Ω	±5%	1

Part Code	Symbol	Description				Q'ty
RME0697	R444	R, Metal	1/4W	365kΩ	±1%	1
RCR3016	R445	R, Carbon	1/4W	33Ω	±5%	1
RCR3046	R446	R, Carbon	1/4W	560Ω	±5%	1
RCR3060	R447	R, Carbon	1/4W	2.2kΩ	±5%	1
RCR3020	R448	R, Carbon	1/4W	47Ω	±5%	1
RCR3032	R449	R, Carbon	1/4W	150Ω	±5%	1
RCR3052	R450	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3060	R450A	R, Carbon	1/4W	2.2kΩ	±5%	1
RCR3020	R451	R, Carbon	1/4W	47Ω	±5%	1
RCR3020	R451A	R, Carbon	1/4W	47Ω	±5%	1
RCR3052	R452	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3060	R452A	R, Carbon	1/4W	2.2kΩ	±5%	1
RCR3020	R453	R, Carbon	1/4W	47Ω	±5%	1
RCR3020	R453A	R, Carbon	1/4W	47Ω	±5%	1
RME0664	R454	R, Metal	1/4W	1.00kΩ	±1%	1
RCR3012	R455	R, Carbon	1/4W	22Ω	±5%	1
RCR3036	R456	R, Carbon	1/4W	220Ω	±5%	1
RCR3003	R456A	R, Carbon	1/4W	6.8Ω	±5%	1
RCR3064	R457	R, Carbon	1/4W	3.3kΩ	±5%	1
RCR3076	R447A	R, Carbon	1/4W	10kΩ	±5%	1
RCR3050	R458	R, Carbon	1/4W	820Ω	±5%	1
RME0653	R458A	R, Metal	1/4W	121Ω	±1%	1
RCR3050	R459	R, Carbon	1/4W	820Ω	±5%	1
RME0653	R459A	R, Metal	1/4W	121Ω	±1%	1
RME0656	R462	R, Metal	1/4W	221Ω	±1%	1
RME0656	R463	R, Metal	1/4W	221Ω	±1%	1
RCR3044	R464	R, Carbon	1/4W	470Ω	±5%	1
RCR3028	R464A	R, Carbon	1/4W	100Ω	±5%	1
RCR3044	R465	R, Carbon	1/4W	330Ω	±5%	1
RCR3044	R466	R, Carbon	1/4W	470Ω	±5%	1
RCR3048	R467	R, Carbon	1/4W	680Ω	±5%	1
RCR3060	R468	R, Carbon	1/4W	2.2kΩ	±5%	1
RCR3056	R469	R, Carbon	1/4W	1.5kΩ	±5%	1
RME0722	R469A	R, Metal	1/4W	392kΩ	±1%	1
RCR3056	R469B	R, Carbon	1/4W	1.5kΩ	±5%	1
RCR3004	R470	R, Carbon	1/4W	10Ω	±5%	1
RCR3105	R470A	R, Carbon	1/4W	680kΩ	±5%	1
RCR3068	R470B	R, Carbon	1/4W	4.7kΩ	±5%	1
RCR3064	R470C	R, Carbon	1/4W	3.3kΩ	±5%	1
RCR3052	R471	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3100	R472	R, Carbon	1/4W	100kΩ	±5%	1
RCR3048	R473	R, Carbon	1/4W	680Ω	±5%	1
RCR3020	R473A	R, Carbon	1/4W	47Ω	±5%	1
RME0660	R474	R, Metal	1/4W	475Ω	±1%	1
RCR3004	R475	R, Carbon	1/4W	10Ω	±5%	1
RCR3004	R476	R, Carbon	1/4W	10Ω	±5%	1
RCR3044	R477	R, Carbon	1/4W	470Ω	±5%	1
RCR3050	R478	R, Carbon	1/4W	820Ω	±5%	1
RCR3050	R479	R, Carbon	1/4W	820Ω	±5%	1
RCR3052	R480	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3052	R481	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3036	R482	R, Carbon	1/4W	220Ω	±5%	1
RSE0434	R483	R, Solid	1/4W	10MΩ	±5%	1
RCR3052	R484	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3028	R485	R, Carbon	1/4W	100Ω	±5%	1
RCR3064	R487	R, Carbon	1/4W	3.3kΩ	±5%	1
RCR3076	R488	R, Carbon	1/4W	10kΩ	±5%	1
RCR3044	R489	R, Carbon	1/4W	470Ω	±5%	1
RCR3003	R490	R, Carbon	1/4W	6.8Ω	±5%	1
RCR3068	R491	R, Carbon	1/4W	4.7kΩ	±5%	1
RCR3003	R492	R, Carbon	1/4W	6.8Ω	±5%	1
RCR3003	R492A	R, Carbon	1/4W	6.8Ω	±5%	1
RCR3003	R493	R, Carbon	1/4W	6.8Ω	±5%	1

Part Code	Symbol	Description				Q'ty
RCR3072	R494	R, Carbon	1/4W	6.8kΩ	±5%	1
RCR3060	R495	R, Carbon	1/4W	2.2kΩ	±5%	1
RCR3012	R496	R, Carbon	1/4W	22Ω	±5%	1
RCR3044	R496A	R, Carbon	1/4W	470Ω	±5%	1
RCR3100	R497	R, Carbon	1/4W	100kΩ	±5%	1
RCR3068	R498	R, Carbon	1/4W	4.7kΩ	±5%	1
RCR3100	R498A	R, Carbon	1/4W	100kΩ	±5%	1
RCR3100	R499	R, Carbon	1/4W	100kΩ	±5%	1
RCR3102	R499A	R, Carbon	1/4W	220kΩ	±5%	1
RCR3064	R499B	R, Carbon	1/4W	3.3kΩ	±5%	1
RCR3028	R601	R, Carbon	1/4W	100Ω	±5%	1
RCR3104	R602	R, Carbon	1/4W	470kΩ	±5%	1
RCR3040	R603	R, Carbon	1/4W	330Ω	±5%	1
RCR3104	R606	R, Carbon	14/W	470kΩ	±5%	1
RCR3020	R607	R, Carbon	1/4W	47Ω	±5%	1
RCR3040	R608	R, Carbon	1/4W	330Ω	±5%	1
RCR3028	R609	R, Carbon	1/4W	100Ω	±5%	1
RCR3072	R610	R, Carbon	1/4W	6.8kΩ	±5%	1
RCR3060	R612	R, Carbon	1/4W	2.2kΩ	±5%	1
RCR3076	R612A	R, Carbon	1/4W	10kΩ	±5%	1
RCR3060	R613	R, Carbon	1/4W	2.2kΩ	±5%	1
RCR3060	R614	R, Carbon	1/4W	2.2kΩ	±5%	1
RCR3052	R615	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3052	R616	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3020	R617	R, Carbon	1/4W	47Ω	±5%	1
RCR3020	R617A	R, Carbon	1/4W	47Ω	±5%	1
RCR3020	R618	R, Carbon	1/4W	47Ω	±5%	1
RCR3020	R618A	R, Carbon	1/4W	47Ω	±5%	1
RCR3012	R619	R, Carbon	1/4W	22Ω	±5%	1
RME0664	R620	R, Metal	1/4W	1.00kΩ	±1%	1
RCR3066	R621	R, Carbon	1/4W	3.9kΩ	±5%	1
RCR3048	R622	R, Carbon	1/4W	680Ω	±5%	1
RCR3072	R622A	R, Carbon	1/4W	6.8kΩ	±5%	1
RCR3003	R622B	R, Carbon	1/4W	6.8Ω	±5%	1
RCR3050	R623	R, Carbon	1/4W	820Ω	±5%	1
RME0653	R623A	R, Metal	1/4W	121Ω	±1%	1
RCR3050	R624	R, Carbon	1/4W	820Ω	±5%	1
RME0653	R624A	R, Metal	1/4W	121Ω	±1%	1
RME0656	R625	R, Metal	1/4W	221Ω	±1%	1
RME0656	R626	R, Metal	1/4W	221Ω	±1%	1
RCR3048	R627	R, Carbon	1/4W	680Ω	±5%	1
RCR3048	R628	R, Carbon	1/4W	680Ω	±5%	1
RCR3048	R629	R, Carbon	1/4W	680Ω	±5%	1
RCR3048	R631	R, Carbon	1/4W	680Ω	±5%	1
RCR3052	R632	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3032	R633	R, Carbon	1/4W	150Ω	±5%	1
RME0657	R633A	R, Metal	1/4W	267Ω	±1%	1
RCR3024	R633B	R, Carbon	1/4W	68Ω	±5%	R
RME0668	R633C	R, Metal	1/4W	2.21kΩ	±1%	1
RME0668	R633D	R, Metal	1/4W	2.21kΩ	±1%	1
RME0652	R633E	R, Metal	1/4W	100Ω	±1%	1
RME0652	R633F	R, Metal	1/4W	100Ω	±1%	1
RCR3048	R634	R, Carbon	1/4W	680Ω	±5%	1
RCR3020	R634A	R, Carbon	1/4W	47Ω	±5%	1
RCR3052	R635	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3040	R638	R, Carbon	1/4W	330Ω	±5%	1
RME0660	R640	R, Metal	1/4W	475Ω	±1%	1
RCR3004	R641	R, Carbon	1/4W	10Ω	±5%	1
RCR3004	R642	R, Carbon	1/4W	10Ω	±5%	1
RCR3044	R643	R, Carbon	1/4W	470Ω	±5%	1
RCR3050	R644	R, Carbon	1/4W	820Ω	±5%	1
RCR3050	R645	R, Carbon	1/4W	820Ω	±5%	1
RCR3076	R646	R, Carbon	1/4W	10kΩ	±5%	1

PEF-497F PCB

Part Code	Symbol	Description	Q'ty
RCR3068	R647	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3060	R648	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3068	R649	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3068	R650	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3060	R651	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3003	R652	R, Carbon 1/4W 6.8Ω ±5%	1
RCR3048	R653	R, Carbon 1/4W 680Ω ±5%	1
RCR3072	R655	R, Carbon 1/4W 6.8kΩ ±5%	1
RCR3048	R663	R, Carbon 1/4W 680Ω ±5%	1
RCR3068	R690	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3052	R691	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3052	R692	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3003	R693	R, Carbon 1/4W 6.8Ω ±5%	1
RCR3003	R694	R, Carbon 1/4W 6.8Ω ±5%	1
RCR3003	R694A	R, Carbon 1/4W 6.8Ω ±5%	1
RCR3003	R695	R, Carbon 1/4W 6.8Ω ±5%	1
RCR3052	R698	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3052	R699	R, Carbon 1/4W 1.0kΩ ±5%	1
HX8348450	RV208	VR, Metal CR29R 100Ω	1
HX8348450	RV211	VR, Metal CR29R 100Ω	1
HX8348450	RV311	VR, Metal CR29R 100Ω	1
RDE0003	RV440	VR, Carbon EVH-Y13K20B14	1
HX8348450	RV441	VR, Metal CR29R 10kΩ	1
RDE0003	RV621	VR, Carbon EVH-Y13K20B14	1
HX8348450G	RV622A	VR, Metal CR29R 10kΩ	1
SSL0056	S401	SW, Lever SLA225	1
SSL0056	S402	SW, Lever SLA225	1
SSL0056	S403	SW, Lever SLA225	1
HX8311793	S404	SW, Push UEG22	1
SSL0056	S601	SW, Lever SLA225	1
HTC0192	TR204	Transistor 2SC641K-C	1
HTC0192	TR205	Transistor 2SC641K-C	1
HTA0224	TR206	Transistor 2SA1029D	1
HTA0099	TR214	Transistor 2SA781K	1
HTC0192	TR304	Transistor 2SC641K-C	1
HTC0192	TR305	Transistor 2SC641K-C	1
HTA0099	TR314	Transistor 2SA781K	1
HTK0081	TR435	Transistor 2SK304E	1
HTC0338	TR439	Transistor 2SC1906	1
HTC0338	TR447	Transistor 2SC1906	1
HTC0338	TR449	Transistor 2SC1906	1
HTC0338	TR450	Transistor 2SC1906	1
HTA0099	TR475	Transistor 2SA781K	1
HTA0099	TR476	Transistor 2SA781K	1
HTA0224	TR494	Transistor 2SA1029D	1
HTA0224	TR495	Transistor 2SA1029D	1
HTA0224	TR498	Transistor 2SA1029D	1
HTK0081	TR607	Transistor 2SK304E	1
HTC0338	TR609	Transistor 2SC1906	1
HTC0338	TR639	Transistor 2SC1906	1
HTC0338	TR640	Transistor 2SC1906	1
HTA0099	TR641	Transistor 2SA781K	1
HTA0099	TR642	Transistor 2SA781K	1
HTA0224	TR647	Transistor 2SA1029D	1

Part Code	Symbol	Description	Q'ty
CCC1025	C501	C, Ceramic 50V 100pF ±10%	1
CCC1030	C503	C, Ceramic 50V 10000pF +80% -20%	1
CCC1014	C504A	C, Ceramic 50V 47pF ±5%	1
CCC1030	C506	C, Ceramic 50V 10000pF +80% -20%	1
CCC1014	C508	C, Ceramic 50V 47pF ±5%	1
CCC1027	C512	C, Ceramic 50V 220pF ±10%	1
CEC0180	C514	C, AL Elyc 25V 22μF	1
CCC1002	C515	C, Ceramic 50V 10pF ±0.5pF	1
CEC0170	C516	C, AL Elyc 16V 47μF	1
CQA0097A	C517	C, Plastic 50V 1000pF ±10%	1
CEC0213	C523	C, AL Elyc 160V 1μF	1
CCC1030	C525	C, Ceramic 50V 10000pF +80% -20%	1
CCC1011	C526	C, Ceramic 50V 33pF ±5%	1
CCC1009	C530	C, Ceramic 50V 27pF ±5%	1
HX3142155B	CV530	C, Variable ECV-12W 10x93	1
HX3142077A	C531	C, Plastic 100V 1+0.01μF ±0.5%	1
CQA0095	C532	C, Plastic 50V 4700pF ±10%	1
HX3142077A	C533	C, Plastic 100V 1+0.01μF ±0.5%	R
HX3142155C	CV534	C, Variable ECV-12W 20x93	
CCC1014	C535	C, Ceramic 50V 47pF ±5%	1
CEC0170	C542	C, AL Elyc 16V 47μF	1
CCC1030	C543	C, Ceramic 50V 10000pF +80% -20%	1
CCC1030	C544	C, Ceramic 50V 10000pF +80% -20%	1
CEC0180	C545	C, AL Elyc 25V 22μF	1
CEC0194	C546	C, AL Elyc 50V 2.2μF	1
CQA0103	C547	C, Plastic 50V 0.1μF ±10%	1
CQA0103	C547A	C, Plastic 50V 0.1μF ±10%	1
CQA0099	C548	C, Plastic 50V 22000pF ±10%	1
CQA0093	C549	C, Plastic 50V 2200pF ±10%	1
CCC1027	C550	C, Ceramic 50V 220pF ±10%	1
CCC1025	C551	C, Ceramic 50V 100pF ±10%	1
CEC0175	C553	C, AL Elyc 25V 10μF	1
CEC0175	C554	C, AL Elyc 25V 10μF	1
CEC0170	C555	C, AL Elyc 16V 47μF	1
CEC0175	C559	C, AL Elyc 25V 10μF	1
CCC1030	C569	C, Ceramic 50V 10000μF +80% -20%	1
CCC1030	C585	C, Ceramic 50V 10000pF +80% -20%	1
CCC1030	C587	C, Ceramic 50V 10000pF +80% -20%	1
CCC1133	C588	C, Ceramic 50V 1pF ±0.25pF	1
CEC0170	C593	C, AL Elyc 16V 47μF	1
CCC1133	C594	C, Ceramic 50V 1pF ±0.25pF	1
CEC0170	C595	C, AL Elyc 16V 47μF	1
CCC1030	C703	C, Ceramic 50V 10000pF +80% -20%	1
CCC1014	C704A	C, Ceramic 50V 47pF ±5%	1
CCC1030	C706	C, Ceramic 50V 10000pF +80% -20%	1
CCC1014	C708	C, Ceramic 50V 47pF ±5%	1
CCC1030	C713	C, Ceramic 50V 10000pF +80% -20%	1
CCC1030	C714	C, Ceramic 50V 10000pF +80% -20%	1
CCC1002	C715	C, Ceramic 50V 10pF ±0.5pF	1
CCC1030	C725	C, Ceramic 50V 10000pF +80% -20%	1
CCC1011VA	C726	C, Ceramic 50V 33pF ±5%	1
CCC1009	C730	C, Ceramic 50V 27pF ±5%	1
HX3142155B	CV730	C, Variable ECV-1ZW 10x93	1
HX3142077A	C731	C, Plastic 100V 0.01μF ±1%	1
CQA0095	C732	C, Plastic 50V 4700pF ±10%	1
HX3142077A	C733	C, Plastic 100V 0.01μF ±1%	R
HX3142155C	CV734	C, Variable ECV-1ZW 20x93	1

Part Code	Symbol	Description	Q'ty
CCC1014	C735	C, Ceramic 50V 47 pF ±5%	1
CCC1025	C742	C, Ceramic 50V 100 pF ±10%	1
	C743		
	C744		
CCC1030	C760	C, Ceramic 50V 10000 pF +80 -20%	1
CCC1027	C761	C, Ceramic 50V 220 pF ±10%	1
CCC1027	C763	C, Ceramic 50V 220 pF ±10%	1
CCC1365	C764	C, Ceramic 50V 680 pF ±1%	1
CCC1030	C765	C, Ceramic 50V 10000 pF +80 -20%	1
CCC1030	C766	C, Ceramic 50V 10000 pF +80 -20%	1
CEC0175	C768	C, AL Elyc 25V 10μF	1
CEC0175	C776	C, AL Elyc 25V 10μF	1
CCC1030	C780	C, Ceramic 50V 10000 pF +80 -20%	1
CCC1011	C782B	C, Ceramic 50V 33 pF ±5%	1
CEC0170	C791	C, AL Elyc 16V 47μF	1
HX3142155	CV530	C, Variable ECV-1ZW10x93	1
HX3142155	CV534	C, Variable ECV-1ZW20x93	1
HX3142155	CV730	C, Variable ECV-1ZW10x93	1
HX3142155	CV734	C, Variable ECV-1ZW20x93	1
HX3142155F	CV782A	C, Variable ECV-1ZW50x93	1
HDS0108	D504	Diode 1S2075 T-D	1
HDM0051	D505	Diode MA161	1
HDM0051	D508	Diode MA161	1
HDM0051	D509	Diode MA161	1
HDS0108	D540A	Diode 1S2075 T-D	1
HDS0108	D548	Diode 1S2075 T-D	1
HDS0108	D550	Diode 1S2075 T-D	1
HDS0108	D551	Diode 1S2075 T-D	1
HDS0108	D552	Diode 1S2075 T-D	1
HDS0108	D558	Diode 1S2075 T-D	1
HDS0108	D559	Diode 1S2075 T-D	1
HDS0108	D704	Diode 1S2075 T-D	1
HDM0051	D705	Diode MA161	1
HDM0051	D708	Diode MA161	1
HDM0051	D709	Diode MH161	1
HDS0108	D740A	Diode 1S2075 T-D	1
HDS0108	D763	Diode 1S2075 T-D	1
HDS0108	D764	Diode 1S2075 T-D	1
HDS0108	D768	Diode 1S2075 T-D	1
HDS0108	D769	Diode 1S2075 T-D	1
HDS0108	D770	Diode 1S2075 T-D	1
HDS0108	D771	Diode 1S2075 T-D	1
HDS0108	D772	Diode 1S2075 T-D	1
HDS0108	D776	Diode 1S2075 T-D	1
HDS0108	D780	Diode 1S2075 T-D	1
HDS0108	D781	Diode 1S2075 T-D	1
HDS0108	D782	Diode 1S2075 T-D	1
HDS0108	D783	Diode 1S2075 T-D	1
HDS0108	D784	Diode 1S2075 T-D	1
HDS0108	D785	Diode 1S2075 T-D	1
HDS0108	D786	Diode 1S2075 T-D	1
ILT0037	IC500	IC, Analog TL081CP	1
IDH0002	IC501	Digital IC HD10102	1
IDH0177	IC502	Digital IC HD7400P	1
IDH0467	IC503	IC, Digital HD74LS00P	1
IDM0113	IC505	Digital IC MC14053BCP	1
IDH0713	IC506	IC, Digital HD74LS109AP	1
TLF0063	L761	Coil FL-5H 330K	1
TLF0019	L782A	Coil FL-5H 330K	1

Part Code	Symbol	Description	Q'ty
JBX1712	P500	Connector 1-171826-0	1
JBX0470	P501	Connector 171825-6	1
JBX1711	P503	Connector 171826-6	1
JBX0468	P509	Connector 171825-3	1
JBX0470	P546	Connector 171825-6	1
JBX1711	P590	Connector 171826-6	1
JBX0468	P591	Connector 171825-3	1
JBX0704	P595	Connector 171825-4	1
JBX1711	P767	Connector 171826-6	1
H116457	PEF497	PCB PEF-496-497	1
H291533	PEF497		R
RCR3056	R501	R, Carbon 1/4W 1.5kΩ ±5%	1
RME0669	R502	R, Metal 1/4W 2.67kΩ ±1%	1
RME0674	R503	R, Metal 1/4W 6.81kΩ ±1%	1
RCR3048	R504	R, Carbon 1/4W 680Ω ±5%	1
RCR3040	R504A	R, Carbon 1/4W 330Ω ±5%	1
RCR3084	R505	R, Carbon 1/4W 22kΩ ±5%	1
RCR3012	R506	R, Carbon 1/4W 22Ω ±5%	1
RCR3060	R507	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3048	R508	R, Carbon 1/4W 680Ω ±5%	1
RCR3060	R509	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3012	R510	R, Carbon 1/4W 22Ω ±5%	1
RCR3028	R512	R, Carbon 1/4W 100Ω ±5%	1
RCR3106	R513	R, Solid 1/4W 1MΩ ±5%	1
RCR3024	R514	R, Carbon 1/4W 68Ω ±5%	1
RCR3003	R515	R, Carbon 1/4W 6.8Ω ±5%	1
RCR3066	R516	R, Carbon 1/4W 3.9kΩ ±5%	1
RCR3012	R516A	R, Carbon 1/4W 22Ω ±5%	1
RCR3068	R517	R, Carbon 1/4W 4.7kΩ ±5%	1
RME0680	R518	R, Metal 1/4W 22.1kΩ ±1%	1
RME0665	R519	R, Metal 1/4W 1.21kΩ ±1%	1
RCR3028	R520	R, Carbon 1/4W 100Ω ±5%	1
RCR3020	R521	R, Carbon 1/4W 47Ω ±5%	1
RCR3076	R522	R, Carbon 1/4W 10kΩ ±5%	1
RCR3183	R523	R, Carbon 1/4W 10kΩ ±5%	1
RCR3060	R525	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3036	R526	R, Carbon 1/4W 220Ω ±5%	1
RME0668	R527	R, Metal 1/4W 2.21kΩ ±1%	1
RME0799	R528	R, Metal 1/4W 2.43kΩ ±1%	1
RMR3283	R530	R, Metal 1/2W 4.32MΩ ±1%	1
RME0833	R531	R, Metal 1/2W 1.43MΩ ±0.5%	1
RME0834	R532	R, Metal 1/2W 715kΩ ±0.5%	1
RME0699	R533	R, Metal 1/4W 429kΩ ±0.5%	1
RME0718	R534	R, Metal 1/4W 143kΩ ±0.5%	1
RME0717	R535	R, Metal 1/4W 71.5kΩ ±0.5%	1
RME0717	R536	R, Metal 1/4W 71.5kΩ ±0.5%	1
RCR3054	R537	R, Carbon 1/4W 1.2kΩ ±5%	1
RME0700	R538	R, Metal 1/4W 17.8kΩ ±0.5%	1
RME0700	R539	R, Metal 1/4W 17.8kΩ ±0.5%	1
RCR3038	R539A	R, Carbon 1/4W 270Ω ±5%	1
RME0674	R540	R, Metal 1/4W 6.81kΩ ±1%	1
8348540D	RV540	VR, Metal CR29R 1kΩ	1
RCR3104	R540A	R, Carbon 1/4W 470kΩ ±5%	1
RCR3040	R541	R, Carbon 1/4W 330Ω ±5%	1
RCR3060	R542	R, Carbon 1/4W 2.2kΩ ±5%	1
3142080B	RV542	VR, Carbon 16type 1KB+500KB with SW	1
RCR	R543	R, Carbon 1/4W 120Ω ±5%	1
RCR3003	R544	R, Carbon 1/4W 6.8Ω ±5%	1
RCR3100	R546	R, Carbon 1/4W 100kΩ ±5%	1
RCR3074	R547	R, Carbon 1/4W 8.2kΩ ±5%	1
RCR3028	R548	R, Carbon 1/4W 100Ω ±5%	1
RCR3028	R549	R, Carbon 1/4W 100Ω ±5%	1
RCR3072	R550	R, Carbon 1/4W 6.8kΩ ±5%	1

Part Code	Symbol	Description	Q'ty
RCR3096	R551	R, Carbon 1/4W 68kΩ ±5%	1
RCR3100	R552	R, Carbon 1/4W 100kΩ ±5%	1
RCR3084	R553	R, Carbon 1/4W 22kΩ ±5%	1
RCR3028	R554	R, Carbon 1/4W 100Ω ±5%	1
RCR3028	R555	R, Carbon 1/4W 100Ω ±5%	1
RCR3028	R557	R, Carbon 1/4W 100Ω ±5%	1
RCR3183	R558	R, Carbon 1/2W 10kΩ ±5%	1
RCR3028	R558A	R, Carbon 1/4W 100Ω ±5%	1
RCR3052	R559	R, Carbon 1/8W 1.0kΩ ±5%	1
RCR3076	R560	R, Carbon 1/4W 10kΩ ±5%	1
HX8348450E	RV560	VR, Metal CR29R 2.2kΩ	1
RME0663	R561	R, Metal 1/4W 825Ω ±1%	1
RCR3072	R562	R, Carbon 1/4W 6.8kΩ ±5%	1
HX8348450E	RV562	VR, Metal CR29R 2.2kΩ ±5%	1
RME0655	R563	R, Metal 1/4W 182Ω ±1%	1
RCR3060	R565	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3052	R566	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3066	R567	R, Carbon 1/4W 3.9kΩ ±5%	1
RCR3028	R568	R, Carbon 1/4W 100Ω ±5%	1
RCR3060	R569	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3060	R570	R, Carbon 1/4W 2.2kΩ ±5%	1
RME0667	R571	R, Metal 1/4W 1.82kΩ ±1%	1
RME0671	R572	R, Metal 1/4W 3.92kΩ ±1%	1
RME0670	R580A	R, Metal 1/4W 3.32kΩ ±1%	1
RME0658	R580B	R, Metal 1/4W 332Ω ±1%	1
RME0670	R581	R, Metal 1/4W 3.32kΩ ±1%	1
RCR3076	R582	R, Carbon 1/4W 10kΩ ±5%	1
RCR3076	R583	R, Carbon 1/4W 10kΩ ±5%	1
RME0671	R584	R, Metal 1/4W 3.92kΩ ±1%	1
RCR3092	R585	R, Carbon 1/4W 47kΩ ±5%	1
RCR3084	R586	R, Carbon 1/4W 22kΩ ±5%	1
RCR3052	R587	R, Carbon 1/4W 1.0kΩ ±5%	1
RME0665	R588	R, Metal 1/4W 1.21kΩ ±1%	1
RME0663	R589	R, Metal 1/4W 825Ω ±1%	1
RCR3012	R590	R, Carbon 1/4W 22Ω ±5%	1
RME0670	R591	R, Metal 1/4W 3.32kΩ ±1%	1
RME0658	R592A	R, Metal 1/4W 332Ω ±1%	1
RME0658	R592B	R, Metal 1/4W 332Ω ±1%	1
RCR3012	R593	R, Carbon 1/4W 22Ω ±5%	1
RME0665	R594	R, Metal 1/4W 1.21kΩ ±1%	1
RME0663	R595	R, Metal 1/4W 825Ω ±1%	1
RCR3020	R596	R, Carbon 1/4W 47Ω ±5%	1
RCR3068	R597	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3068	R598	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3020	R599	R, Carbon 1/4W 47Ω ±5%	1
RME0666	R701	R, Metal 1/4W 1.50kΩ ±1%	1
RME0669	R702	R, Metal 1/4W 2.67kΩ ±1%	1
RME0674	R703	R, Metal 1/4W 6.81kΩ ±1%	1
RCR3048	R704	R, Carbon 1/4W 680Ω ±5%	1
RCR3040	R704A	R, Carbon 1/4W 330Ω ±5%	1
RCR3084	R705	R, Carbon 1/4W 22kΩ ±5%	1
RCR3012	R706	R, Carbon 1/4W 22Ω ±5%	1
RCR3036	R707B	R, Carbon 1/4W 220Ω ±5%	1
RCR3048	R708	R, Carbon 1/4W 680Ω ±5%	1
RCR3028	R712	R, Carbon 1/4W 100Ω ±5%	1
RCR3012	R713	R, Carbon 1/4W 22Ω ±5%	1
RCR3028	R714	R, Carbon 1/4W 100Ω ±5%	1
HX838450C	RV714	VR, Metal CR29R 470Ω	1
RCR3003	R715	R, Carbon 1/4W 6.8Ω ±5%	1
RCR3078	R716	R, Carbon 1/4W 12kΩ ±5%	1
RCR3020	R722	R, Carbon 1/4W 47Ω ±5%	1
RCR3183	R723	R, Carbon 1/2W 10kΩ ±5%	1
RCR3060	R725	R, Carbon 1/4W 2.2kΩ ±5%	1

Part Code	Symbol	Description	Q'ty
RCR3044	R726	R, Carbon 1/4W 470Ω ±5%	1
RME0668	R727	R, Metal 1/4W 2.21kΩ ±1%	1
RME0667	R728	R, Metal 1/4W 1.82kΩ ±1%	1
RCR3052	R728A	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3028	R729	R, Carbon 1/4W 100Ω ±5%	1
RME0833	R730	R, Metal 1/2W 1.43MΩ ±0.5%	1
RME0834	R731	R, Metal 1/2W 715kΩ ±0.5%	1
RME0699	R732	R, Metal 1/4W 429kΩ ±0.5%	1
RME0718	R733	R, Metal 1/4W 143kΩ ±0.5%	1
RME0717	R734	R, Metal 1/4W 71.5kΩ ±0.5%	1
RME0717	R735	R, Metal 1/4W 71.5kΩ ±0.5%	1
RCR3062	R736	R, Carbon 1/4W 2.7kΩ ±5%	1
RME0717	R737	R, Metal 1/4W 71.5kΩ ±0.5%	1
RME0700	R738	R, Metal 1/4W 17.8kΩ ±0.5%	1
RME0700	R739	R, Metal 1/4W 17.8kΩ ±0.5%	1
RME0674	R740	R, Metal 1/4W 6.81kΩ ±1%	1
8348450	RV740	VR, Metal CR29A 1kΩ	1
RCR3104	R740A	R, Carbon 1/4W 470kΩ ±5%	1
RME0664	R741	R, Metal 1/4W 1.00kΩ ±1%	1
RCR3066	R742	R, Carbon 1/4W 3.9kΩ ±5%	1
HX838450	RV742	VR, Metal CR29R 220Ω	1
RCR3066	R743	R, Carbon 1/4W 3.9kΩ ±5%	1
RCR3066	R744	R, Carbon 1/4W 3.9kΩ ±5%	1
RCR3028	R755	R, Carbon 1/4W 100Ω ±5%	1
RCR3044	R761	R, Carbon 1/4W 470Ω ±5%	1
RCR3036	R761A	R, Carbon 1/4W 220Ω ±5%	1
RCR3080	R762	R, Carbon 1/4W 15kΩ ±5%	1
RCR3038	R763	R, Carbon 1/4W 270Ω ±5%	1
RCR3060	R764	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3076	R766	R, Carbon 1/4W 10kΩ ±5%	1
RCR3020	R767	R, Carbon 1/4W 47Ω ±5%	1
RCR3052	R768	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3076	R769	R, Carbon 1/4W 10kΩ ±5%	1
RCR3028	R770	R, Carbon 1/4W 100Ω ±5%	1
RCR3052	R771	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3076	R772	R, Carbon 1/4W 10kΩ ±5%	1
RCR3050	R773	R, Carbon 1/4W 820Ω ±5%	1
RCR3050	R774	R, Carbon 1/4W 820Ω ±5%	1
RCR3050	R775	R, Carbon 1/4W 820Ω ±5%	1
RCR3076	R776	R, Carbon 1/4W 10kΩ ±5%	1
RCR3012	R776B	R, Carbon 1/4W 22Ω ±5%	1
RME0670	R780	R, Metal 1/4W 3.32kΩ ±1%	1
RCR3076	R780A	R, Carbon 1/4W 10kΩ ±5%	1
RCR3062	R781	R, Carbon 1/4W 2.7kΩ ±5%	1
RCR3064	R781A	R, Carbon 1/4W 3.3kΩ ±5%	1
RCR3060	R782A	R, Carbon 1/4W 2.2kΩ ±5%	1
RME0659	R783A	R, Metal 1/4W 392Ω ±1%	1
RME0671	R784	R, Metal 1/4W 3.92kΩ ±1%	1
RCR3052	R785	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3052	R786	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3012	R791	R, Carbon 1/4W 22Ω ±5%	1
RCR3064	R792	R, Carbon 1/4W 3.3kΩ ±5%	1
RCR3084	R793	R, Carbon 1/4W 22kΩ ±5%	1
RCR3064	R794	R, Carbon 1/4W 3.3kΩ ±5%	1
RCR3012	R795	R, Carbon 1/4W 22Ω ±5%	1
HX8348450	RV540	VR, Metal CR29R 1kΩ	1
HX3142080	RV542	VR, Carbon 1kB+500kB with/SW	1
HX8348450	RV560	VR, Metal CR29R 2.2kΩ	1
HX8348450	RV562	VR, Metal CR29R 2.2kΩ	1
HX8348450	RV714	VR, Metal CR29R 470Ω	1
HX8348450	RV740	VR, Metal CR29R 470Ω	1
HX8348450	RV742	VR, Metal CR29R 220Ω	1
HX8348450C	RV783A	VR, Metal CR29R 470Ω	1

Part Code	Symbol	Description	Q'ty
HX3142078	S501	SW, Rotary S21P 3323/2220	1
SSL0056	S770	SW, Lever SLA225	1
HTA0224	TR501	Transistor 2SA1029D	1
HTA0224	TR502	Transistor 2SA1029D	1
HTC0192	TR504	Transistor 2SC641K-C	1
HTA0224	TR507	Transistor 2SA1029D	1
HTK0081	TR514	Transistor 2SK304E	1
HTC0192	TR516	Transistor 2SC641K-C	1
HTC0338	TR524	Transistor 2SC1906	1
HTC0148	TR548	Transistor 2SC458C	1
HTA0224	TR551	Transistor 2SA1029D	1
HTA0224	TR558	Transistor 2SA1029D	1
HTA0224	TR559	Transistor 2SA1029D	1
HTC0192	TR567	Transistor 2SC641K-C	1
HTC0338	TR588	Transistor 2SC1906	1
HTC0338	TR594	Transistor 2SC1906	1
HTA0099	TR596	Transistor 2SA781K	1
HTA0099	TR599	Transistor 2SA781K	1
HTA0224	TR701	Transistor 2SA1029D	1
HTA0224	TR702	Transistor 2SA1029D	1
HTC0192	TR704	Transistor 2SC641K-C	1
HTK0081	TR714	Transistor 2SK304E	1
HTC0192	TR716	Transistor 2SC641K-C	1
HTC0338	TR724	Transistor 2SC1906	1
HTC0148	TR728	Transistor 2SC458C	1
HTC0192	TR768	Transistor 2SC641K-C	1
HTC0192	TR793	Transistor 2SC641K-C	1
HTC0192	TR795	Transistor 2SC641K-C	1

PEF-498F PCB

Part Code	Symbol	Description	Q'ty
CCC1014	C319	C, Ceramic 50V 47 pF ±5%	1
CEC0175	C321	C, AL Elyc 25V 10μF	1
CCC1002	C325	C, Ceramic 50V 10 pF ±0.5pF	1
CCC0996	C326	C, Ceramic 50V 2 pF ±0.25pF	1
CEC0175	C327	C, AL Elyc 25V 10μF	1
CCC1365	C329	C, Ceramic 50V 680 pF ±10%	1
CCC1365	C330	C, Ceramic 50V 680 pF ±10%	1
CEC0175	C333	C, AL Elyc 25V 10μF	1
CEC0176	C343	C, AL Elyc 25V 10μF NP	1
CCC1002	C344	C, Ceramic 50V 10 pF ±0.5pF	1
CCC0999	C345	C, Ceramic 50V 5 pF ±0.25pF	1
CCC0996	C353	C, Ceramic 50V 2 pF ±0.25pF	1
CCC1029	C354	C, Ceramic 50V 1000 pF +80% -20%	1
CCC1029	C355	C, Ceramic 50V 1000 pF +80% -20%	1
CCC1030	C357	C, Ceramic 50V 10000 pF +80% -20%	1
CCC1030	C361	C, Ceramic 50V 10000 pF +80% -20%	1
CCC1365	C366	C, Ceramic 50V 680 pF ±20%	1
CCC1030	C373	C, Ceramic 50V 1000 pF +80% -20%	1

Part Code	Symbol	Description	Q'ty
CCC1030	C376	C, Ceramic 50V 10000 pF +80% -20%	1
CCC1029	C381	C, Ceramic 50V 1000 pF +80% -20%	1
CCD0286	C383	C, Ceramic 500V 4700 pF +100% -0%	1
CCD0217	C389	C, Ceramic 500V 1000 pF ±10%	1
CEC0213	C391	C, AL Elyc 160V 1μF	1
CEC0213	C1034	C, AL Elyc 160V 1μF	1
CCD0287	C1035	C, Ceramic 500V 4700 pF +100% -0%	1
CCC1030	C1041	C, Ceramic 50V 10000 pF +80% -20%	1
CCC1030	C1042	C, Ceramic 50V 10000 pF +80% -20%	1
CCC1030	C1043	C, Ceramic 50V 10000 pF +80% -20%	1
H3159319	CV325	C, Variable ECV-1ZW 20x92	1
H3159319	CV342	C, Variable ECV-1ZW 20x92	1
H3159319	CV344	C, Variable ECV-1ZW 20x92	1
HDS0129	D345	Diode 1S2268	1
HDH0029	D381	Diode HZ5B T-D	1
HDH0072	D1034	Diode HZ22	1
HX8193940	J384	Pin For Connector	1
HX8193940	J385	Pin For Connector	1
HX841221A	L337	Core L1-RH0303	1
HX841221A	L338	Core L1-RH0303	1
H8354946B	L384	Coil T-Coil (3T, 7T)	1
H8354946B	L385	Coil T-Coil (3T, 7T)	1
HX841221A	L389	Core L1-RH0303	1
JBX1711	P323	Connector 171826-6	1
JBX1710	P357	Connector 171826-3	1
JBX1710	P380	Connector 171826-3	1
JBX1711	P1038	Connector 171826-6	1
H116456	PEF498	PCB PEF-495	R
RCR3024	R313	R, Carbon 1/4W 68Ω ±5%	1
RCR3024	R314	R, Carbon 1/4W 68Ω ±5%	1
RCR3058	R319	R, Carbon 1/4W 1.8kΩ ±5%	1
RME0652	R321	R, Metal 1/4W 100Ω ±1%	1
RME0652	R322	R, Metal 1/4W 100Ω ±1%	1
RCR3064	R323	R, Carbon 1/4W 3.3kΩ ±5%	1
RCR3054	R324	R, Carbon 1/4W 1.2kΩ ±5%	1
RCR3036	R325	R, Carbon 1/4W 220Ω ±5%	1
RME0651	R326	R, Metal 1/4W 82.5Ω ±1%	1
RME0662	R327	R, Metal 1/4W 681Ω ±1%	1
RME0662	R328	R, Metal 1/4W 681Ω ±1%	1
RCR3042	R329	R, Carbon 1/4W 390Ω ±5%	1
RCR3042	R330	R, Carbon 1/4W 390Ω ±5%	1
RME0659	R333	R, Metal 1/4W 392Ω ±1%	1
RME0659	R334	R, Metal 1/4W 392Ω ±1%	1
RME0670	R335	R, Metal 1/4W 3.32kΩ ±1%	1
RME0665	R336	R, Metal 1/4W 1.21kΩ ±1%	1
RME0652	R337	R, Metal 1/4W 100Ω ±1%	1
RME0652	R338	R, Metal 1/4W 100Ω ±1%	1
RCR3044	R339	R, Carbon 1/4W 470Ω ±5%	1
RCR3004	R340	R, Carbon 1/4W 10Ω ±5%	1
RME0737	R341	R, Metal 1/4W 71.5Ω ±1%	1
RCR3004	R342	R, Carbon 1/4W 10Ω ±5%	1
RCR3068	R343	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3056	R344	R, Carbon 1/4W 1.5kΩ ±5%	1
RCR3084	R345	R, Carbon 1/4W 22kΩ ±5%	1
RME0663	R346	R, Metal 1/4W 825Ω ±1%	1
RME0663	R347	R, Metal 1/4W 825Ω ±1%	1
RCR3036	R348	R, Carbon 1/4W 220Ω ±5%	1
RCR3004	R349	R, Carbon 1/4W 10Ω ±5%	1
RCR3004	R353	R, Carbon 1/4W 10Ω ±5%	1
RCR3040	R354	R, Carbon 1/4W 330Ω ±5%	1
RCR3040	R355	R, Carbon 1/4W 330Ω ±5%	1

PEF-499F PCB

Part Code	Symbol	Description	Q'ty
RCR3004	R356	R, Carbon 1/4W 10Ω ±5%	1
RCR3056	R357	R, Carbon 1/4W 1.5kΩ ±5%	1
RCR3048	R359	R, Carbon 1/4W 680Ω ±5%	1
RCR3052	R360	R, Carbon 1/4W 1.0kΩ ±5%	1
RME0651	R361	R, Metal 1/4W 82.5Ω ±1%	1
RME0651	R362	R, Metal 1/4W 82.5Ω ±1%	1
RME0651	R365	R, Metal 1/4W 82.5Ω ±1%	1
RCR3074	R366	R, Carbon 1/4W 8.2kΩ ±5%	1
RME0693	R367	R, Metal 1/4W 619Ω ±1%	1
RME0693	R368	R, Metal 1/4W 619Ω ±1%	1
RME0693	R369	R, Metal 1/4W 619Ω ±1%	1
RME0693	R370	R, Metal 1/4W 619Ω ±1%	1
RME0693	R371	R, Metal 1/4W 619Ω ±1%	1
RME0693	R372	R, Metal 1/4W 619Ω ±1%	1
RMR3735	R373	R, Metal 1W 68Ω ±5%	1
RME0651	R374	R, Metal 1/4W 82.5Ω ±1%	1
RME0648	R375	R, Metal 1/4W 47.5Ω ±1%	1
RMR3735	R376	R, Metal 1W 68Ω ±5%	1
RCR3076	R380	R, Carbon 1/4W 10kΩ ±5%	1
RCR3020	R381	R, Carbon 1/4W 47Ω ±5%	1
RCR3004	R382	R, Carbon 1/4W 10Ω ±5%	1
RCR3004	R383	R, Carbon 1/4W 10Ω ±5%	1
RCR3032	R384	R, Carbon 1/4W 150Ω ±5%	1
RCR3028	R385	R, Carbon 1/4W 100Ω ±5%	1
RCR3020	R386	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R387	R, Carbon 1/4W 47Ω ±5%	1
RMR3257	R389	R, Metal 5W 390Ω ±5%	1
RMR3257	R390	R, Metal 5W 390Ω ±5%	1
RCR3004	R391	R, Carbon 1/4W 10Ω ±5%	1
RCR3100	R1034	R, Carbon 1/4W 100kΩ ±5%	1
RCR3052	R1035	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3072	R1036	R, Carbon 1/4W 6.8kΩ ±5%	1
RCR3036	R1037	R, Carbon 1/4W 220Ω ±5%	1
H8360551	RT324	Thermistor TMD1410H	1
H8360551	RT345	Thermistor TMD1410H	1
RNC0005	RV325	VR, Metal CR19R B 1000Ω	1
RNC0030	RV327	VR, Metal CR19R B 220Ω(B)	1
RNC0003	RV339	VR, Metal CR19R B 1Ω	1
RNC0012	RV1035	VR, Metal CR19R B 100kΩ	1
RNC0012	RV1038	VR, Metal CR19R B 100kΩ	1
HTA0108	TR321	Transistor 2SA800	1
HTA0108	TR322	Transistor 2SA800	1
HTC0338	TR329	Transistor 2SC1906	1
HTC0338	TR330	Transistor 2SC1906	1
HTC0496	TR337	Transistor 2SC1747	1
HTC0496	TR338	Transistor 2SC1747	1
HTC0496	TR353	Transistor 2SC1747	1
HTC0496	TR355	Transistor 2SC1747	1
HTC0064	TR361	Transistor 2SC1252	1
HTC0064	TR362	Transistor 2SC1252	1
HTC0064	TR383	Transistor 2SC1252	1
HTC0064	TR386	Transistor 2SC1252	1

Part Code	Symbol	Description	Q'ty
CCD0287	C801	C, Ceramic 500V 10000pF ±10%	1
CQA0093	C803	C, Ceramic 50V 2200pF ±10%	1
CCD0287	C811	C, Ceramic 500V 4700pF +100 -0 %	1
CCC1027	C814	C, Ceramic 50V 220pF ±10%	1
CEC0175	C824	C, AL Elyc 25V 10μF	1
8390149	C825	C, Ceramic 500V 0.55pF ±0.05pF	1
8390149	C826	C, Ceramic 500V 0.55pF ±0.05pF	1
CCD0287	C831	C, Ceramic 500V 4700pF +100-%	1
CCD0287	C832	C, Ceramic 500V 4700pF +100-%	1
CCD0287	C833	C, Ceramic 500V 4700pF +100-%	1
CCD0287	C843	C, Ceramic 500V 4700pF +100-%	1
CCC1034	C845	C, Ceramic 50V 68pF ±5%	1
CCC1034	C846	C, Ceramic 50V 68pF ±5%	1
CEC0175	C891	C, AL Elyc 25V 10μF	1
CQA0097	C1104	C, Plastic 50V 10000pF ±10%	1
CEC0214	C1105	C, AL Elyc 160V 10μF	1
CQA0097	C1106	C, Plastic 50V 10000pF ±10%	1
CEC0211	C1110	C, AL Elyc 100V 220μF	1
CEC0347	C1111	C, AL Elyc 25V 2200μF	1
CCC1027	C1112	C, Ceramic 50V 220pF ±10%	1
CEC0170	C1113	C, AL Elyc 16V 47μF	1
CEC0170	C1116	C, AL Elyc 16V 47μF	1
CEC0347	C1121	C, AL Elyc 25V 2200μF	1
CEC0170	C1124	C, AL Elyc 16V 47μF	1
CEC0347	C1131	C, AL Elyc 25V 2200μF	1
CEC0170	C1132	C, AL Elyc 16V 47μF	1
CQA0103	C1142	C, Plastic 50V 0.1μF ±10%	1
CEC0211	C1151	C, AL Elyc 100V 220μF	1
CEC0214	C1156	C, AL Elyc 160V 10μF	1
CEC0178	C1161	C, AL Elyc 25V 1000μF	1
HDH0029	D832	Diode HZ5B T-D	1
HDM0033	D1101	Diode M4C-1	1
HDS0108	D1103	Diode 1S2075 T-D	1
HDS0108	D1104	Diode 1S2075 T-D	1
HDV0019	D1105	Diode V06C	1
HDM0033	D1111	Diode M4C-1	1
HDV0019	D1114	Diode V06C	1
HDH0040	D1117	Diode HZ7BT-D	1
HDV0019	D1124	Diode V06C	1
HDM0033	D1131	Diode M4C-1	1
HDV0019	D1151	Diode V06C	1
HDH0072	D1152	Diode HZ22	1
HDH0072	D1153	Diode HZ22	1
HDS0108	D1155	Diode 1S2075 T-D	1
HDV0019	D1156	Diode V06C	1
HDV0019	D1161	Diode V06C	1
HDV0019	D1162	Diode V06C	1
EFG0344	F1161	Fuse MF61NM 1 (1A 250V)JIS	1
ILH0091	IC1104	Analog IC HA17458GS	1
ILH0019	IC1111	Analog IC HA17723G	1
HX8338437	IC1121	IC MPC7912H	1
HX8338426A	IC1131	IC HA17805P	1
HX8193940	J839	Pin For Connector	1
HX8193940	J840	Pin For Connector	1
JBX0704	P801	Connector 171825-4	1
JBX0470	P811	Connector 171825-6	1
JBX0703	P1101	Connector 1-171825-0	1
JBX0470	P1104	Connector 171825-6	1
JBX0470	P1105	Connector 171825-6	1
JBX0470	P1106	Connector 171825-6	1
JBX0703	P1107	Connector 1-171825-0	1

Part Code	Symbol	Description	Q'ty
JBX0470	P1191	Connector 171825-6	1
JBX0468	P1192	Connector 171825-3	1
H116458	PEF499	PCB PEF-499	1
RME0677	R801	R, Metal 1/4W 12.1kΩ ±1%	1
RME0677	R802	R, Metal 1/4W 12.1kΩ ±1%	1
RCR3084	R803	R, Carbon 1/4W 22kΩ ±5%	1
RCR3024	R804	R, Carbon 1/4W 68Ω ±5%	1
RME0676	R811	R, Metal 1/4W 10.0kΩ ±1%	1
RME0676	R812	R, Metal 1/4W 10.0kΩ ±1%	1
RME0714	R813	R, Metal 1/4W 909Ω ±1%	1
RCR3100	R814	R, Carbon 1/4W 220kΩ ±5%	1
RCR3036	R820	R, Carbon 1/4W 220Ω ±5%	1
RME0665	R821	R, Metal 1/4W 1.21kΩ ±1%	1
RME0665	R822	R, Metal 1/4W 1.21kΩ ±1%	1
RCR3076	R823	R, Carbon 1/4W 10kΩ ±5%	1
RCR3016	R824	R, Carbon 1/4W 33Ω ±5%	1
RMR3731	R825	R, Metal 2W 10kΩ ±5%	1
RMR8731	R826	R, Metal 2W 10kΩ ±5%	1
RCR3024	R827	R, Carbon 1/4W 68Ω ±5%	1
RCR3024	R828	R, Carbon 1/4W 68Ω ±5%	1
RCR3052	R829	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3044	R830	R, Carbon 1/4W 470kΩ ±5%	1
RCR3092	R831	R, Carbon 1/4W 47kΩ ±5%	1
RCR3060	R832	R, Carbon 1/4W 2.2kΩ ±5%	1
RME0659	R833	R, Metal 1/4W 392Ω ±1%	1
RME0659	R834	R, Metal 1/4W 392Ω ±1%	1
RCR3060	R835	R, Carbon 1/4W 2.2kΩ ±5%	1
RMR3731	R837	R, Metal 2W 10kΩ ±5%	1
RMR3731	R838	R, Metal 2W 10kΩ ±5%	1
RCR3036	R839	R, Carbon 1/4W 220Ω ±5%	1
RCR3036	R840	R, Carbon 1/4W 220Ω ±5%	1
RCR3028	R844	R, Carbon 1/4W 100Ω ±5%	1
RCR3028	R845	R, Carbon 1/4W 100Ω ±5%	1
RCR3032	R891	R, Carbon 1/4W 220Ω ±5%	1
RCR3004	R1101	R, Carbon 1/4W 10Ω ±5%	1
RCR3080	R1102	R, Carbon 1/4W 15kΩ ±5%	1
RCR3052	R1103	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3076	R1104	R, Carbon 1/4W 10kΩ ±5%	1
RME0685	R1105	R, Metal 1/4W 56.2kΩ ±1%	1
RME0677	R1106	R, Metal 1/4W 12.1kΩ ±1%	1
RCR3076	R1107	R, Carbon 1/4W 10kΩ ±5%	1
RWM0146	R1111	R, Solid M-2 0.47Ω ±5%	1
RME0671	R1112	R, Metal 1/4W 3.92kΩ ±1%	1
RME0729	R1113	R, Metal 1/4W 6.19kΩ ±1%	1
RNC0003	RV1112	VR, Metal Metal CR19R B1kΩ	1
RME0676	R1115	R, Metal 1/4W 10.0kΩ ±1%	1
RCR3052	R1116	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3175	R1117	R, Carbon 1/2W 4.7kΩ ±5%	1
RME-676	R1125	R, Metal 1/4W 10.0kΩ ±1%	1
RCR3052	R1191	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3104	R1142	R, Carbon 1/4W 470kΩ ±5%	1
RCR3068	R1143	R, Carbon 1/4W 4.7Ω ±5%	1
RCR3004	R1151	R, Carbon 1/4W 10Ω ±5%	1
RCR3076	R1152	R, Carbon 1/4W 10kΩ ±5%	1
HRNC0005	RV804	VR, Metal CR19R B 100Ω	1
HRNC0031	RV811	VR, Metal CR19R B 4.7kΩ	1
HRNC0002	RV813	VR, Metal CR19R B 470Ω	1
RNC0003	RV1112	VR, Metal CR19R B 1kΩ	1
HTA0099	TR801	Transistor 2SA781K	1

Part Code	Symbol	Description	Q'ty
HTA0099	TR802	Transistor 2SA781K	1
HTA0099	TR811	Transistor 2SA781K	1
HTA0099	TR812	Transistor 2SA781K	1
HTC0338	TR825	Transistor 2SC1906	1
HTC0338	TR828	Transistor 2SC1906	1
HTD0100	TR831	Transistor 2SD668A-C	1
HTD0100	TR832	Transistor 2SD668A-C	1
HTB0087	TR833	Transistor 2SB648A-C	1
HTB0087	TR834	Transistor 2SB648A-C	1
HTC0338	TR836	Transistor 2SC1906	1
HTC0338	TR837	Transistor 2SC1906	1
HTD0126	TR1101	Transistor 2SD1138-C	1
HTD0126	TR1102	Transistor 2SD1138-C	1
HTD0126	TR1111	Transistor 2SD1138-C	1
HTD0126	TR1151	Transistor 2SD1138-C	1
HTC0148	TR1191	Transistor 2SC458C	1
HTC0032	TR1192	Transistor 2SC1061C	1

PEF-500F PCB

Part Code	Symbol	Description	Q'ty
CEC0170	C1201	C, AL Elyc 16V 47μF	1
CCC1030	C1202	C, Ceramic 50V 10000pF +80% -20%	1
CQA0099	C1203	C, Plastic 50V 22000pF ±10%	1
CCC1027	C1205	C, Ceramic 50V 220pF ±10%	1
CCC1025	C1206	C, Ceramic 50V 100pF ±10%	1
CEC0170	C1209	C, AL Elyc 16V 47μF	1
CEC0175	C1303	C, AL Elyc 25V 10μF	1
CEC0175	C1304	C, AL Elyc 25V 10μF	1
HDH0040	D1301	Diode HZ7BT-D	1
HDH0040	D1302	Diode HZ7BT-D	1
HDS0108	D1303	Diode 1S2075 T-D	1
HDS0108	D1304	Diode 1S2075 T-D	1
HDS0408	D1401	Diode SR503D with Mount (RED)	1
ILH0121	IC1201	IC HA17555GS	1
IDM0169	IC1202	Digital IC MC14011BCP	1
TLF0019	L1208	Coil FL-5H 330K	1
JBX1710	P1201	Connector 171826-3	1
JBX0468	P1202	Connector 171825-3	1
	P1203		
JBX1710	P1302	Connector 171826-3	1
JBX1711	P1303	Connector 171826-6	1
H116458	PEF-500	PCB PEF-499	R
RCR3076	R1201	R, Carbon 1/4W 10kΩ ±5%	1
RCR3012	R1202	R, Carbon 1/4W 22Ω ±5%	1
RME0674	R1203	R, Metal 1/4W 6.81kΩ ±1%	1
RME0680	R1204	R, Metal 1/4W 22.1kΩ ±1%	1
RME0676	R1205	R, Metal 1/4W 10.0kΩ ±1%	1
RME0660	R1206	R, Metal 1/4W 475Ω ±1%	1
RCR3052	R1207	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3012	R1208	R, Carbon 1/4W 22Ω ±5%	1

Part Code	Symbol	Description	Q'ty
RCR3084	R1209	R, Carbon 1/4W 22kΩ ±5%	1
RCR3052	R1302	R, Carbon 1/4W 1.0kΩ ±5%	1
RCR3068	R1303	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3068	R1304	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3052	R1401	R, Carbon 1/4W 1.0kΩ ±5%	1
HX8348450G	RV1203	VR, Metal CR29R 10kΩ	1
HX8348450E	RV1205	VR, Metal CR29R 2.2kΩ	1
HX3159314	RV1301	VR, Carbon 1/2W 2x10kΩ +20% (DPST)	1
HX3142092A	RV1302	VR, Carbon Type 10KB-10KB	1
HX3142092A	RV1303	VR, Carbon Type 10KB+10KB	1

PEF-501F PCB

Part Code	Symbol	Description	Q'ty
JBX1710	P547	Connector 171826-3	1
JBX1713	P562	Connector 1-171826-2	1
H116456	PEF501	PCB PEF-495	R
RCR3028	R880	R, Carbon 1/4W 100Ω ±5%	1
RCR3080	R881	R, Carbon 1/4W 15kΩ ±5%	1
RCR3028	R882	R, Carbon 1/4W 100Ω ±5%	1
H3159318	RV298	VR, Carbon EWK-ENAP20B14 (10K+10K)	1
HX3142080A	RV552	VR, Carbon Type 16 10KB+50KB with/SW	1
HX8311793D	S357	SW, Push UEG22-2	1

PEF-502F PCB

Part Code	Symbol	Description	Q'ty
HX8329332	PL1401	Lamp Scale 14V 80mA	1
HX8329332	PL1402	Lamp Scale 14V 80mA	1
HX8329332	PL1403	Lamp Scale 14V 80mA	1
H 116458	PEF502	PCB PEF-499	R

PEF-503F PCB

Part Code	Symbol	Description	Q'ty
CCC1025	C1030	C, Ceramic 50V 100pF ±10%	1
JSP0001	J1011	Socket PS-085	1
H116458	PEF-503	PCB PEF-499	R
RCR3068	R1030	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3100	R1031	R, Carbon 1/4W 100kΩ ±5%	1
RCR3028	R1033	R, Carbon 1/4W 100Ω ±5%	1
RCR3028	R1035	R, Carbon 1/4W 100Ω ±5%	1

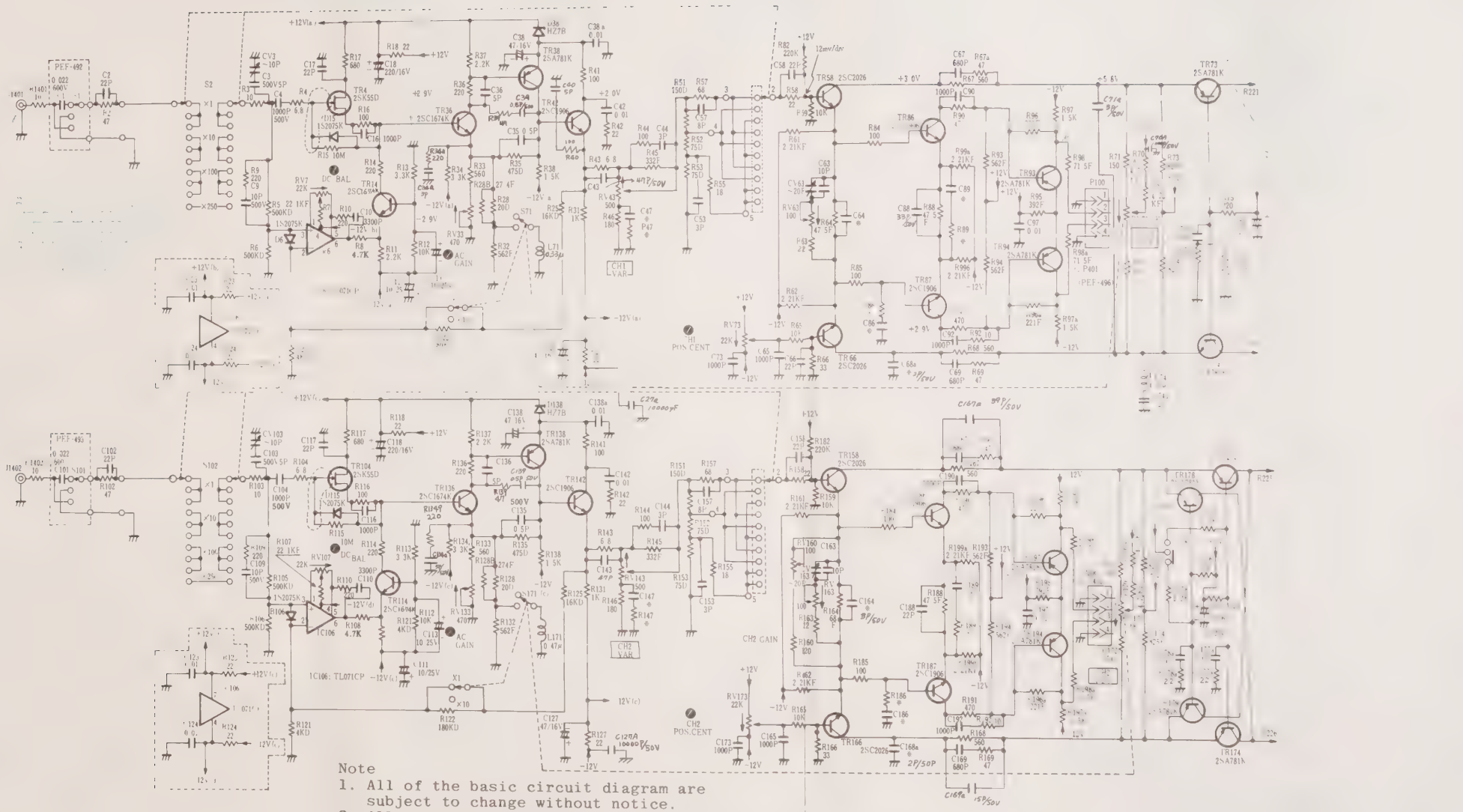
PEF-504F PCB

Part Code	Symbol	Description	Q'ty
CCC0111	C905	C, Ceramic 500V 0.5pF ±0.25pF	1
CCC1004	C906	C, Ceramic 50V 15pF ±5%	1
CEC0175	C910	C, AL Elyc 25V 10μF	1
CCD0218	C912	C, Ceramic 500V 10000pF ±10%	1
CCD0218	C913	C, Ceramic 500V 10000pF ±10%	1
CCC1027	C914	C, Ceramic 50V 220pF ±10%	1
CQA0101	C1001	C, Plastic 50V 47000pF ±10%	1
CQA0101	C1006	C, Plastic 50V 47000pF ±10%	1
CCD0286	C1010	C, Ceramic 500V 1000pF ±10%	1
CCD0289	C1011	C, Ceramic 2000V 4700pF ±10%	1
CCD0289	C1012	C, Ceramic 2000V 4700pF ±10%	1
CEC0213	C1013	C, AL Elyc 160V 1μF	1
CCD0289	C1020	C, Ceramic 2000V 4700pF ±10%	1
CCD0289	C1021	C, Ceramic 2000V 4700pF ±10%	1
CCD0287	C1028	C, Ceramic 500V 4700pF +100 -0 %	1
CCD0245	C1031	C, Ceramic 2000V 100pF ±10%	1
CEC0177	C1161	C, AL Elyc 25V 100μF	1
HDS0415	D903	Diode 1SS88	1
HDS0108	D904	Diode 1S2075 T-D	1
HDS0108	D911	Diode 1S2075 T-D	1
HDS0108	D1001	Diode 1S2075 T-D	1
HDS0250	D1010	Diode 1SS83	1
HDS0250	D1011	Diode 1SS83	1
HDS0250	D1012	Diode 1SS83	1
HDY0031	D1020	Diode Y10GA	1
HDS0250	D1021	Diode 1SS83	1
HDY0031	D1028	Diode Y10GA	1
HDH0072	D1040	Diode HZ22	1
ILT0041	IC1001	IC, Analog TL071CP	1
H3142144	MUT1001	Multiplier 17KV W/Anode Cap	1
ELL0019	NL1031	Lamp NE-2	1
ELL0019	NL1032	Lamp NE-2	1
JBX0468	P901	Connector 171825-3	1
JBX0468	P902	Connector 171825-3	1
JBX0703	P1001	Connector 1-171825-0	1
JBX0468	P1002	Connector 171825-3	1
JBX0468	P1021	Connector 171825-3	1
JBX0468	P1022	Connector 171825-3	1
JBX0468	P1023	Connector 171825-3	1
JBX0468	P1401	Connector 171825-3	1
H116458	PEF-504	PCB PEF-499	R
H116458	PEF-531	PCB PEF-499	R

Part Code	Symbol	Description				Q'ty
RCR3064	R901	R, Carbon	1/4W	3.3kΩ	±5%	1
RCR3080	R902	R, Carbon	1/4W	15kΩ	±5%	1
RME0669	R903	R, Metal	1/4W	2.21kΩ	±1%	1
RME0678	R904	R, Metal	1/4W	15.0kΩ	±1%	1
RMR3725	R905	R, Metal	1W	15kΩ	±5%	1
RCR3064	R906	R, Carbon	1/4W	3.3kΩ	±5%	1
RCR3100	R907	R, Carbon	1/4W	100kΩ	±5%	1
RCR3052	R908	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3020	R909	R, Carbon	1/4W	47Ω	±5%	1
RCR3096	R910	R, Carbon	1/4W	68kΩ	±5%	1
RCR3078	R911	R, Carbon	1/4W	12kΩ	±5%	1
RME0664	R912	R, Metal	1/4W	1.00kΩ	±1%	1
RMR3725	R913	R, Metal	1W	15kΩ	±5%	1
RCR3036	R915	R, Carbon	1/4W	220Ω	±5%	1
RME0674	R916	R, Metal	1/4W	6.81kΩ	±1%	1
RCR3004	R917	R, Carbon	1/4W	10Ω	±5%	1
RCR3044	R918	R, Carbon	1/4W	470Ω	±5%	1
RCR3028	R919	R, Carbon	1/4W	100Ω	±5%	1
RCR3098	R920	R, Carbon	1/4W	82kΩ	±5%	1
RCR3036	R921	R, Carbon	1/4W	220Ω	±5%	1
RME0722	R1001	R, Metal	1/4W	392kΩ	±1%	R
RCR3064	R1002	R, Carbon	1/4W	3.3kΩ	±5%	1
RCR3052	R1003	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3100	R1004	R, Carbon	1/4W	100kΩ	±5%	1
RCR3052	R1005	R, Carbon	1/4W	1.0kΩ	±5%	1
RCR3004	R1006	R, Carbon	1/4W	10Ω	±5%	1
RCR3103	R1010	R, Carbon	1/4W	330kΩ	±5%	1
RCR3036	R1011	R, Carbon	1/4W	220Ω	±5%	1
RCR3016	R1012	R, Carbon	1/4W	33Ω	±5%	1
RCR3068	R1020	R, Carbon	1/4W	4.7kΩ	±5%	1
RSE0434	R1021	R, Solid	1/4W	10MΩ	±5%	1
RCR3480	R1022	R, Carbon	1/2W	2.7MΩ	±5%	1
RCR3480	R1023	R, Carbon	1/2W	2.7MΩ	±5%	1
RCR3480	R1024	R, Carbon	1/2W	2.7MΩ	±5%	1
RCR3480	R1025	R, Carbon	1/2W	2.7MΩ	±5%	1
RCR3106	R1027	R, Carbon	1/4W	1MΩ	±5%	1
RCR3052	R1028	R, Carbon	1/4W	1.0kΩ	±5%	1
RMV0004	R1031	R, Metal	1/2W	22.1MΩ	±1%	1
HX8348450K	RV1040	VR, Metal	CR29R	100kΩ		1
H 3142143	T1001	XFMR	High Voltage XFMR For V1050			1
HTC0192	TR903	Transistor	2SC641K-C			1
HTC0338	TR909	Transistor	2SC1906			1
HTA0258	TR911	Transistor	2SA1210S			1
HTC0669	TR912	Transistor	2SC2912S			1
HTA0104	TR920	Transistor	2SA778AK			1
HTA0099	TR921	Transistor	2SA781K			1
HTC0032	TR1006	Transistor	2SC1061C			1
RME0702	R1001A	R, Metal	1/4W	200kΩ	±0.5%	R

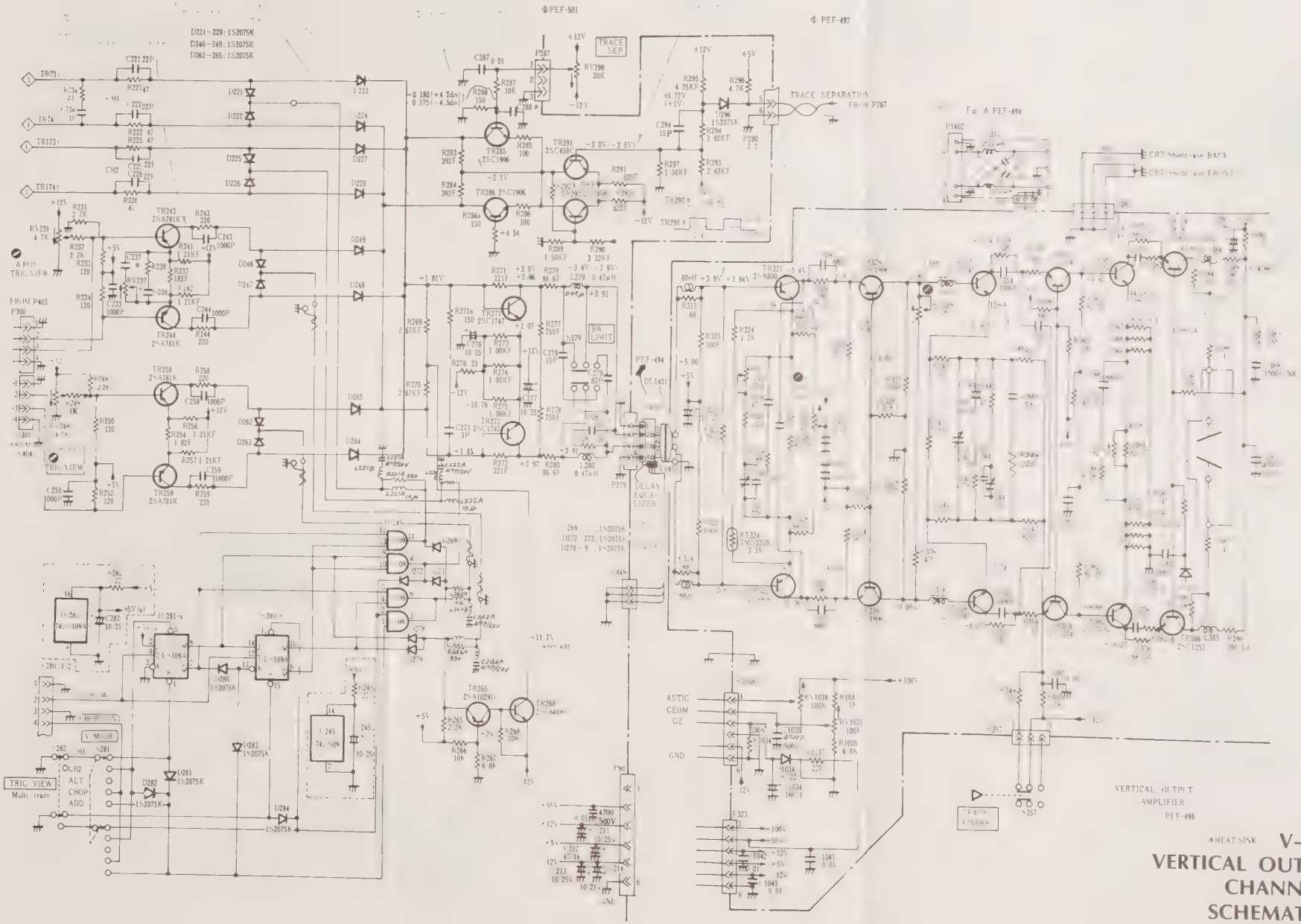
CABINET

Part Code	Symbol	Description		Q'ty
EFG0352	F1401	Fuse	MF61NM 2 (2A 250V)JIS	1
HX3142147	FH1401	Terminal	S-17221 (100/120/220/240V)	1
HX3142116	L1401	Coil	V-550	1
JJC0026	J1410	Connector	CM3 (C-170)	1
RXM0009	RV551	VR, Wire	MF220D 2kΩ	1
RDE0028	RV1401	VR, Carbon	EVM-R7GS20B26	1
HX4114183	TP1401	Terminal	BLK	1
HX8338351	TP1402	Terminal	Z-048	1
H 3159329	T1401	XFMR	Power XFMR For V-1050	1
H 3159317	V1401	CRT	150BNB31	1

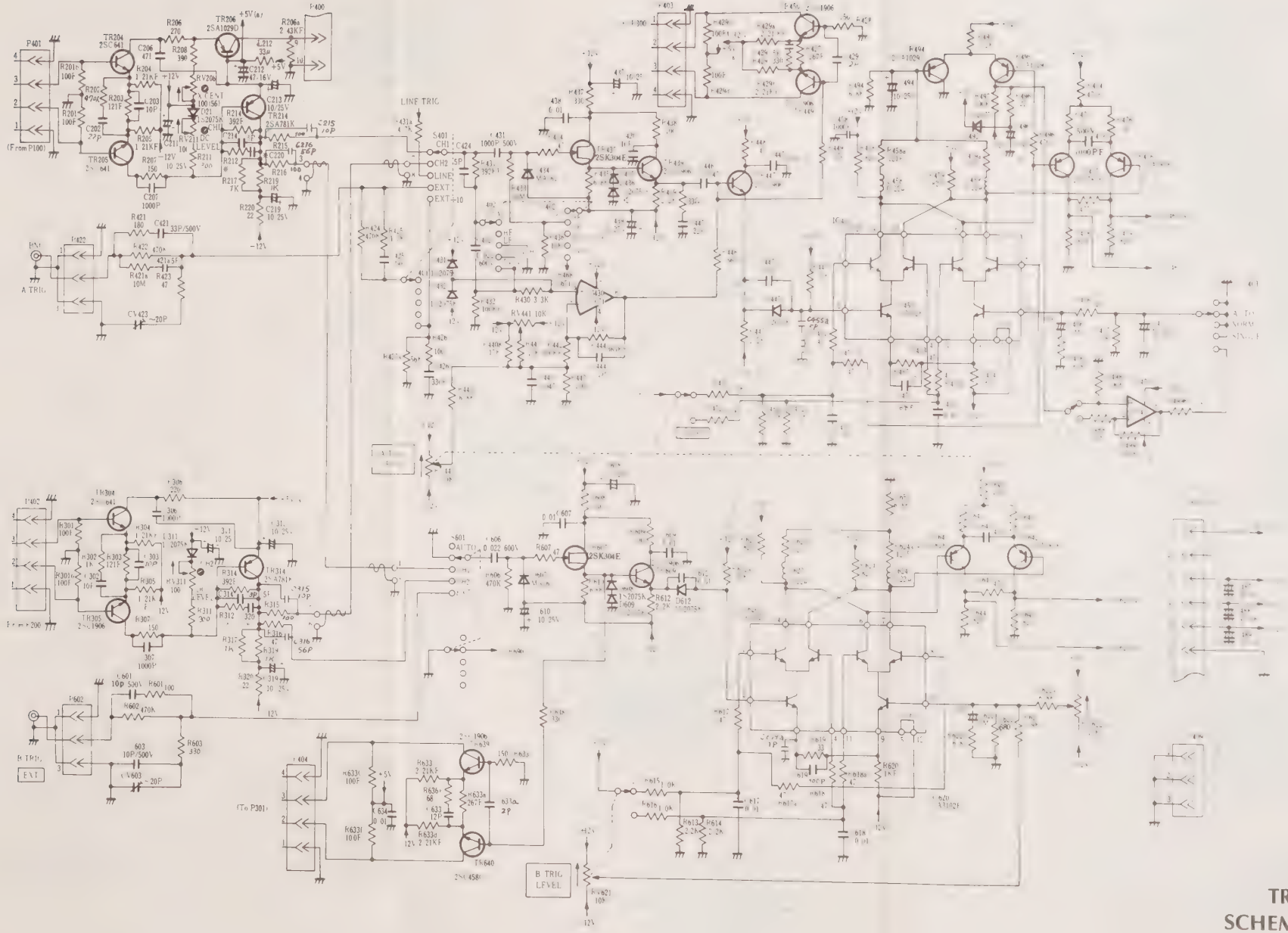


Note
1. All of the basic circuit diagram are subject to change without notice.
2. All resister values in ohm: 1/4W and all capacitor values in micro farad unless indicated.
3. ※ Factory selected values.

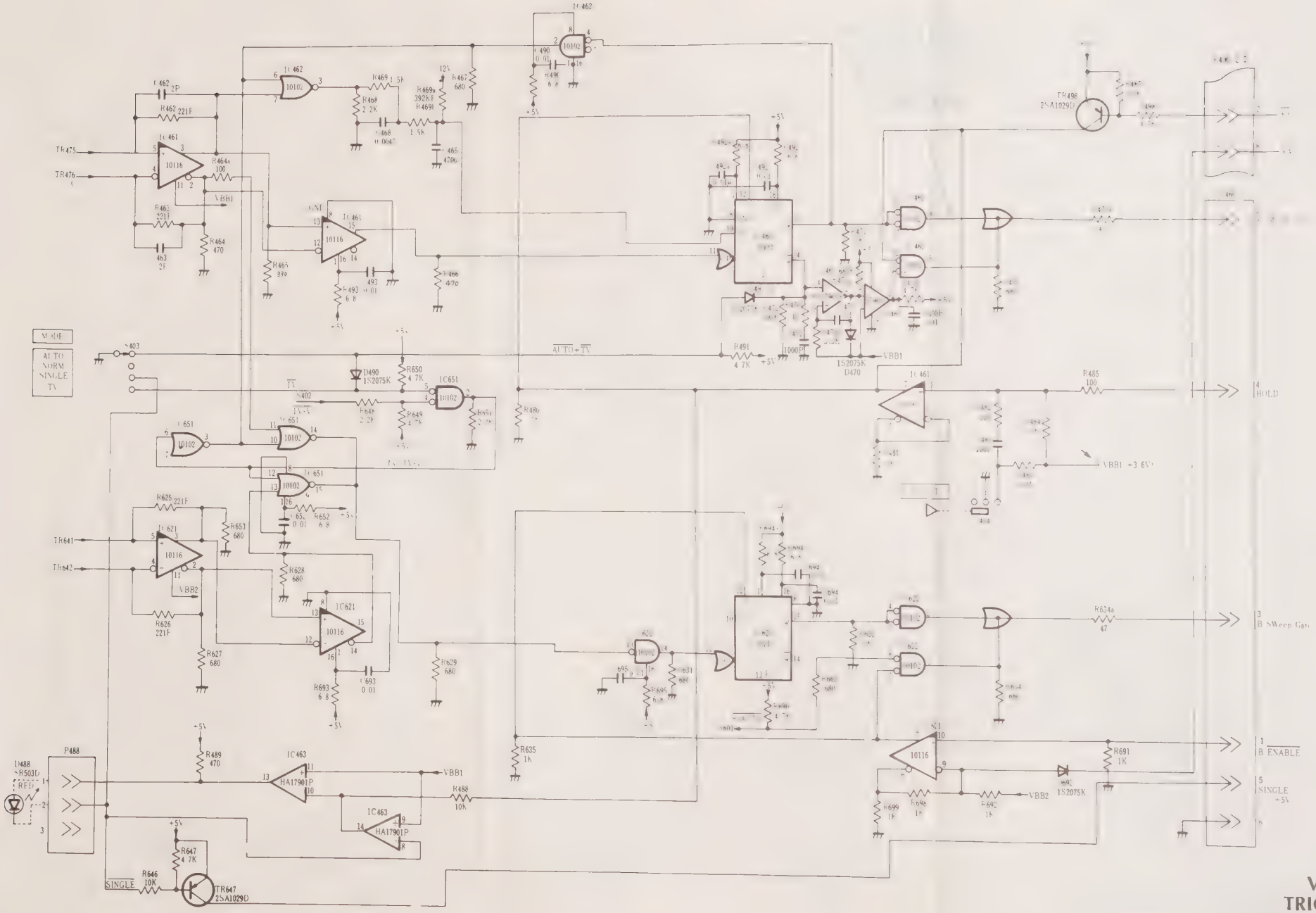
V-1050F
VERTICAL PREAMPLIFIER
SCHEMATIC DIAGRAM ①



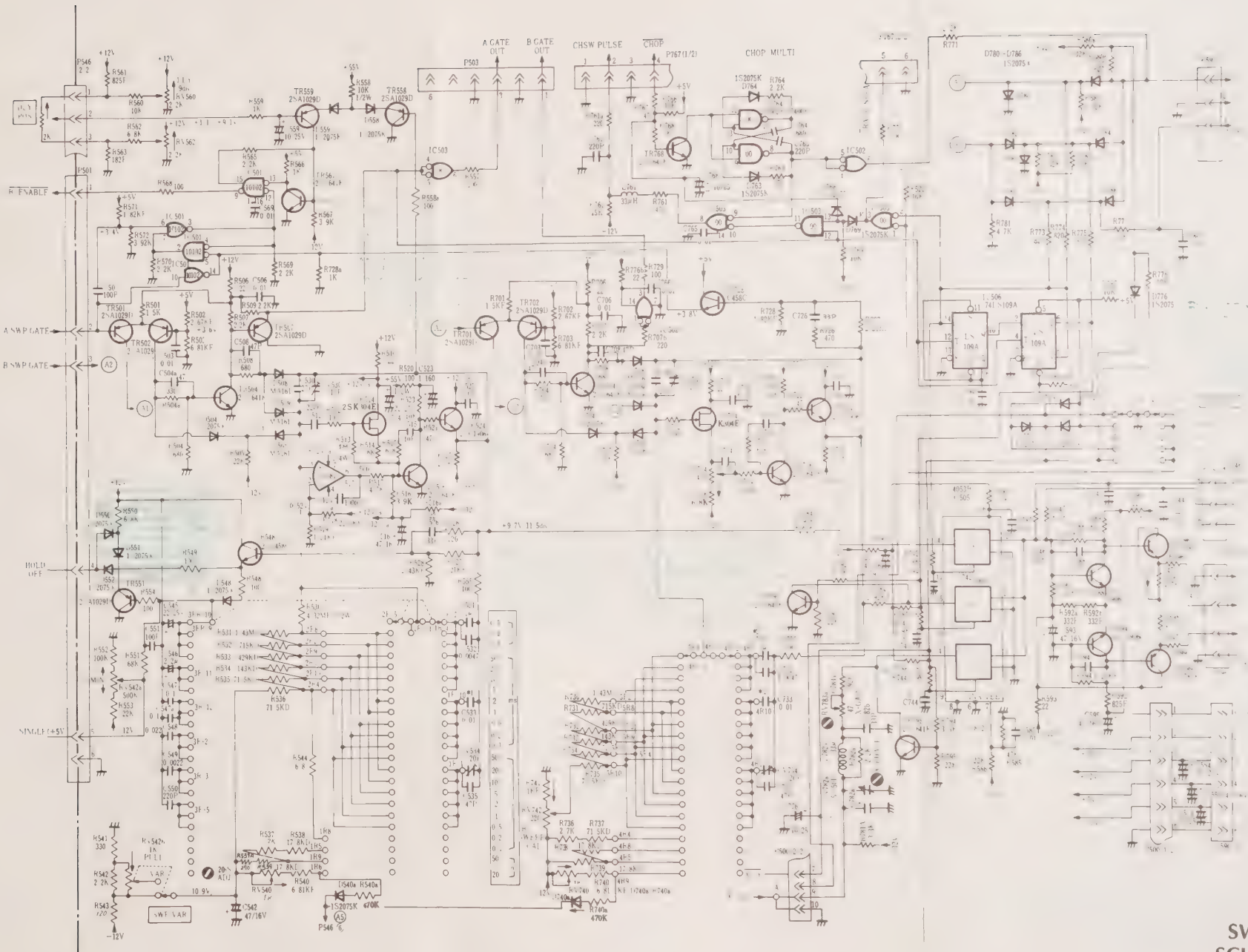
V-1050F
VERTICAL OUTPUT AMPLIFIER & CHANNEL SWITCH SCHEMATIC DIAGRAM ②

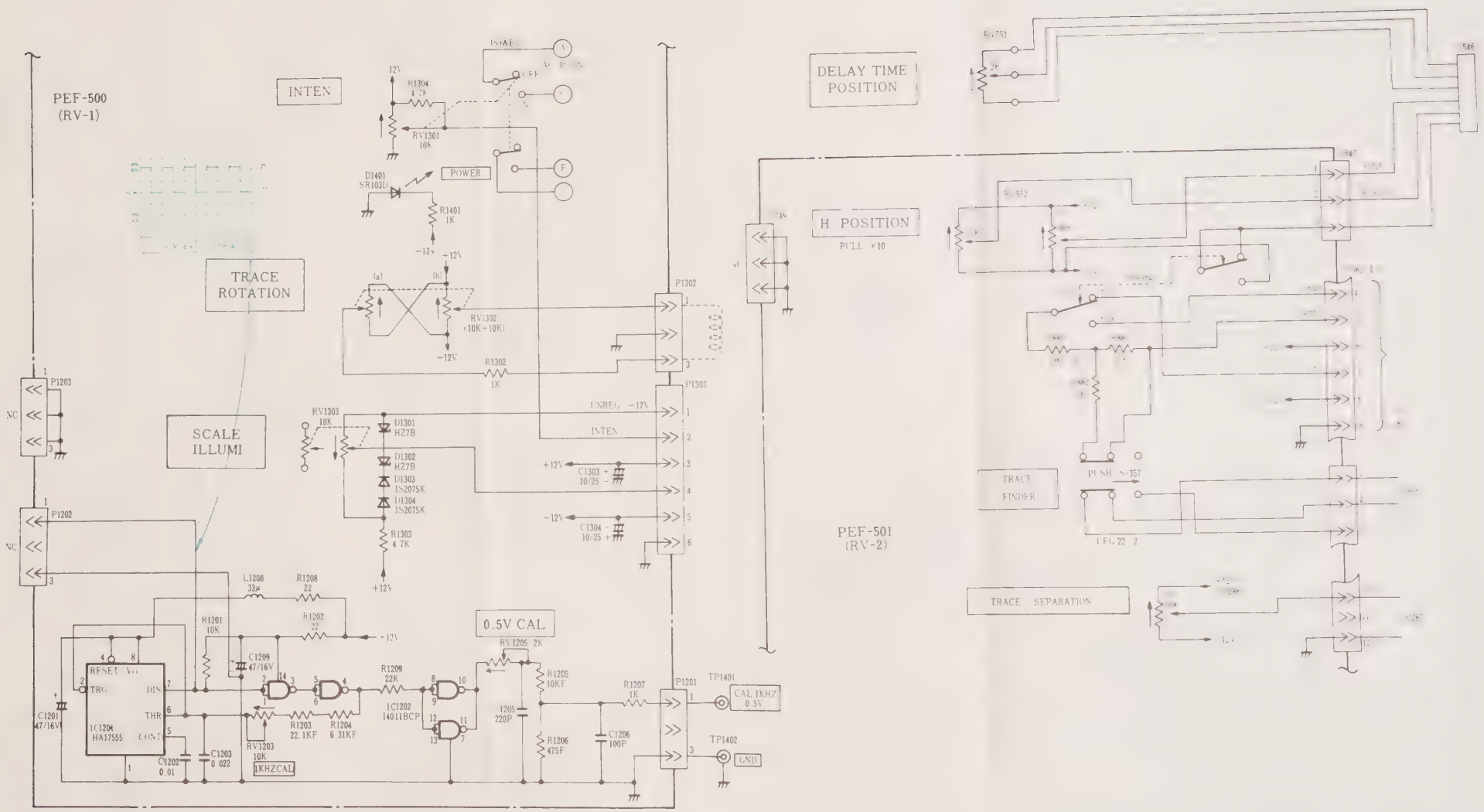


V-1050F
TRIGGER (1/2)
SCHEMATIC DIAGRAM ◈3

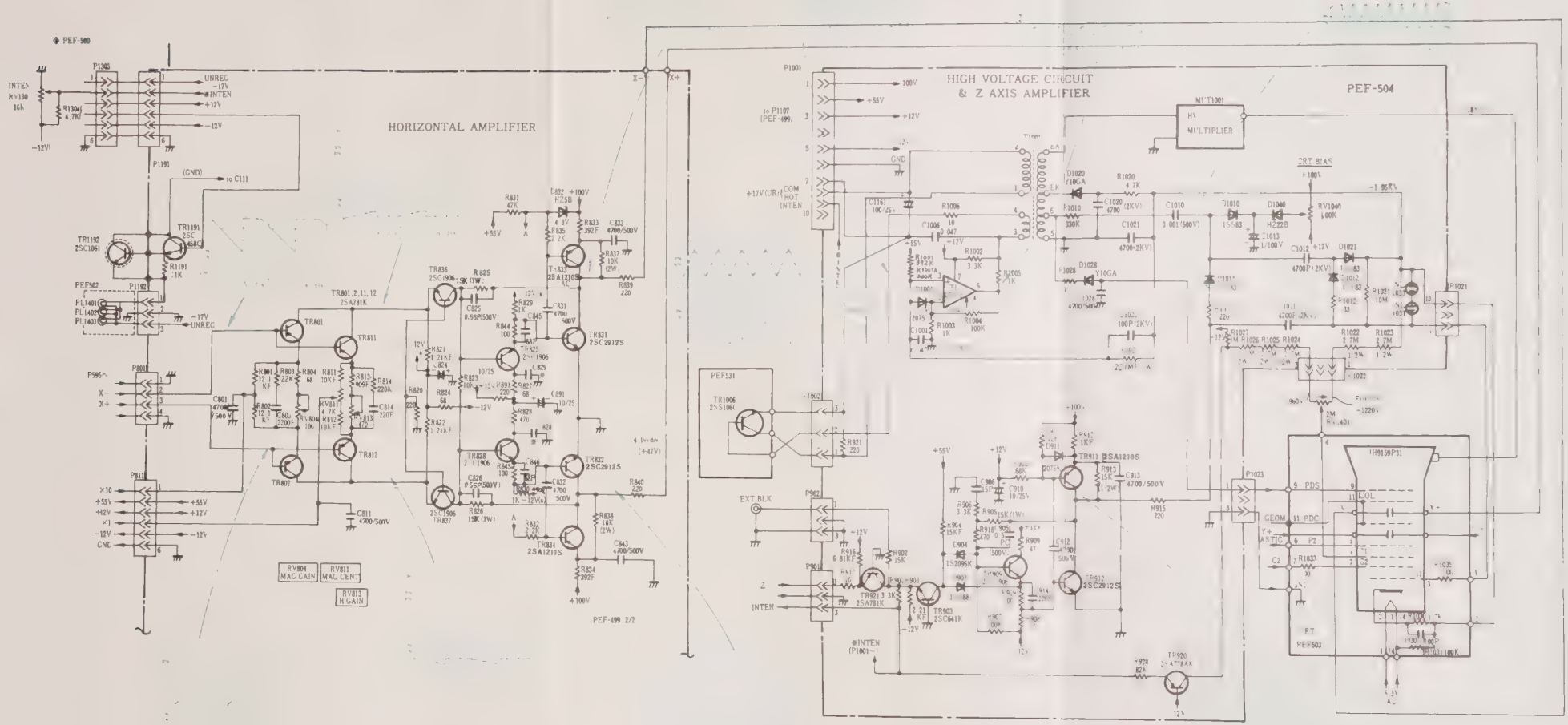


V-1050F
TRIGGER (2/2)
SCHEMATIC DIAGRAM ④

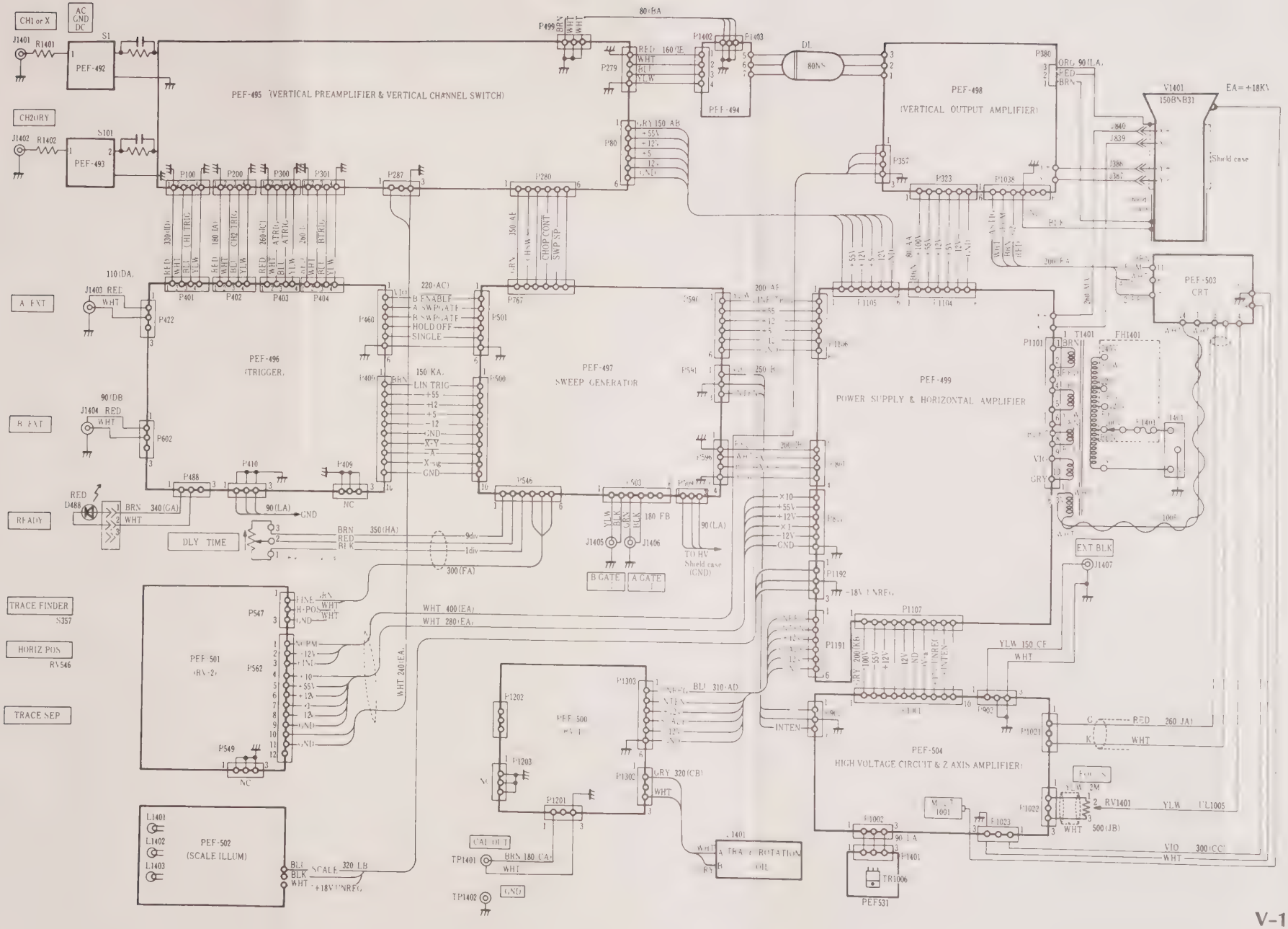

A GATE OUT
B GATE OUT
CHSW PULSE
CHOP
CHOP MULTI
P503
P767(1/2)
P501
R ENABLE
A SWP GATE
B SWP GATE
HOLD OFF
SINGLE (+5V)
IC503
IC502
IC501
IC506
74LS109A
TR559 2SA1029D
TR558 2SA1029D
TR501 2SA1029D
TR502 2SA1029D
TR503 2SC 2SA1029D
TR701 2SA1029D
TR702 2SA1029D
TR551
TR554
2SK304E
K304E
1S2075K
D780 - D786 1S2075
D776 1S2075
R764 2.2K
R761 33μH
R771
R781 4.7K
R773 470
R775
R77
R728a 1K
R729 100
R728 820
C726 33P
R720 470
R707b 220
R706 2.2K
R703 6.81KF
R701 1.5KF
R702 2.67KF
R520 C523
R530 1.43M 2W
R531 1.43M
R532 715K
R533 429K
R534 143K
R535 71.5K
R536 71.5KD
R537 2K
R538 17.8K
R539 17.8K
R540 6.81KF
R736 2.7K
R737 71.5KD
R738 17.8K
R739 17.8K
R740 6.81K
R740a 470K
D540a R540a
1S2075K 470K
C542 47/16V
R541 330
R542a 1K PULL
R542 2.2K
R543 120
VAR
SWP VAR
20% ADJ
10.9V
-12V
+12V
+5V
+9.7V 11.5dc
+3.8V
+3.4V
+1.1 +9.1V
R561 825F
R560 10K
R562 6.8K
R563 182F
R564 9.09K
R565 2.2K
R566 1K
R567 3.9K
R568 100
R569 2.2K
R570 2.2K
R571 1.42KF
R572 3.92K
R506 680
R509 2.2K
R501 1.5K
R502 67K
R503 6.81KF
R504a 6.8K
R505 22K
R550 6.8K
R549 1K
R548 45K
R546 10K
R544 6.8
R545 33K
R547 10K
R552 100K
R551 68K
R542a 500K
R553 22K
R548 10K
R549 1K
R550 6.8K
R551 100K
R552 100K
R553 22K
R554 100
R555 10K 1/2W
R556 1K
R557 10 25V
R558 10K 1/2W
R559 1K
R560 10K
R561 825F
R562 6.8K
R563 182F
R564 9.09K
R565 2.2K
R566 1K
R567 3.9K
R568 100
R569 2.2K
R570 2.2K
R571 1.42KF
R572 3.92K
R506 680
R509 2.2K
R501 1.5K
R502 67K
R503 6.81KF
R504a 6.8K
R505 22K
R520 100
R523 160
R530 1.43M 2W
R531 1.43M
R532 715K
R533 429K
R534 143K
R535 71.5K
R536 71.5KD
R537 2K
R538 17.8K
R539 17.8K
R540 6.81KF
R541 330
R542a 1K PULL
R542 2.2K
R543 120
R544 6.8
R545 33K
R547 10K
R548 45



V-1050F
CALIBRATOR & FRONT PANEL CONTROLS
SCHEMATIC DIAGRAM ⑥



V-1050F
HORIZONTAL AMPLIFIER, Z-AXIS AMPLIFIER & HIGH VOLTAGE CIRCUITS
SCHEMATIC DIAGRAM ⑦

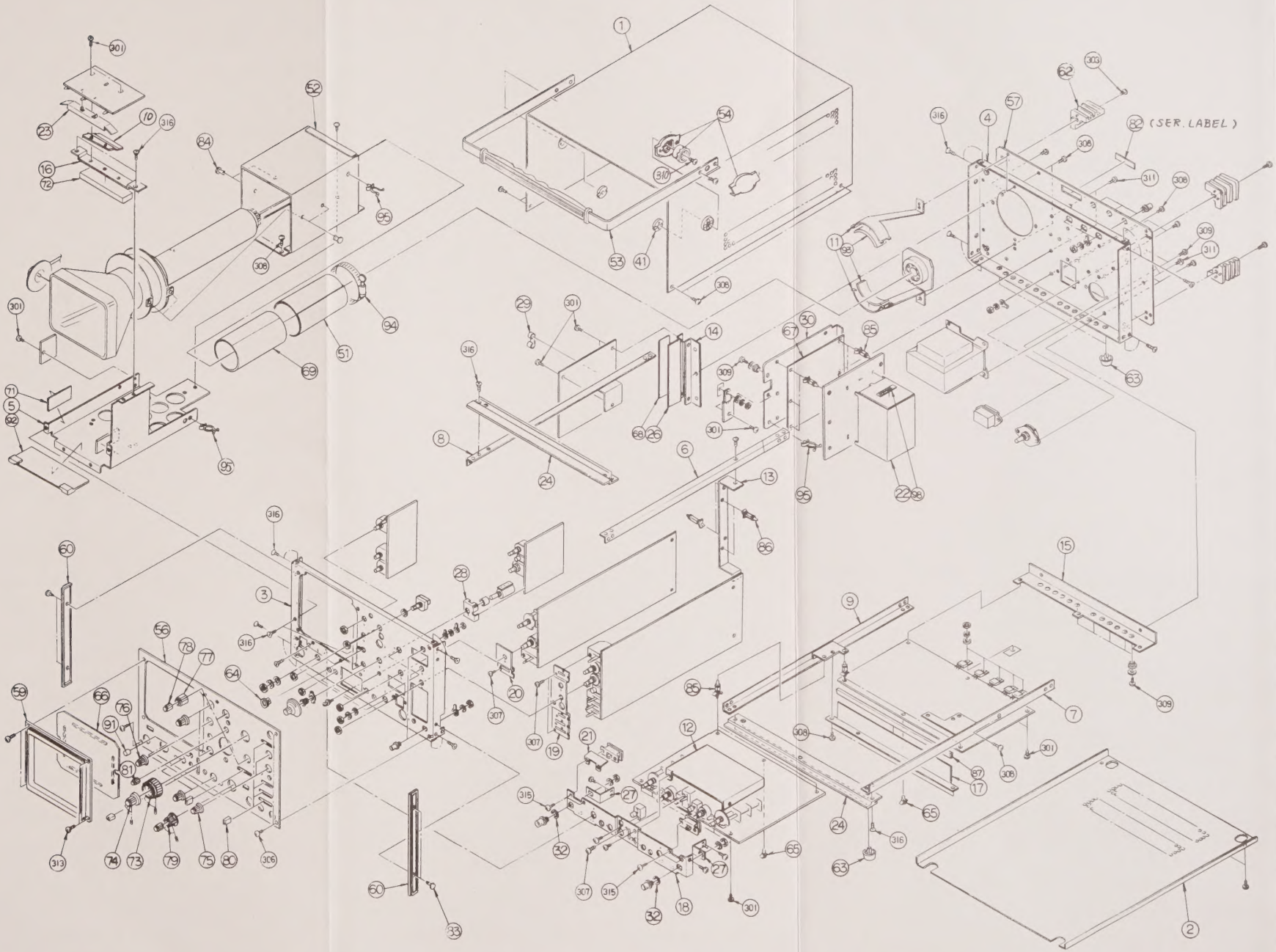


V-1050F CONNECTORS SCHEMATIC DIAGRAM ◈9

8. MECHANICAL PARTS LIST AND EXPLODED VIEW

Part Code	Symbol	Description	Q'ty	Remarks
288054-A	1	Cover	1	
3149269-A	2	Cover	1	
117473-AA	3	Chassis, front	1	
294969-AA	4	Chassis, rear	1	
294970-A	5	Chassis	1	
3149270-A	6	Angle	1	
3149271-AA	7	Angle	1	
3159618-AA	8	Angle	1	
3149273-AA	9	Angle	1	
8364191-A	10	Earth plate	1	
3159619-A	11	CRT band	2	
3159620-A	12	Plate, shield	1	
8338296-A	13	Bracket, support	1	
8353484-A	14	Bracket	1	
3159621-A	15	Bracket	1	
8330677-A	16	Bracket	1	
8330678-A	17	Plate, shield	1	
3159622-A	18	Bracket, LSW	1	
8353485-A	19	Bracket, LSW	1	
8353486-A	20	Bracket, LSW	1	
8338330-A	21	Plate, shield	1	
8353487-AA	22	HV case	1	
8330684-A	23	Plate	1	
3149274-A	24	Plate	2	
8364165-A	26	Plate, shield	1	
8360706-A	27	Plate, earth	2	
8345458-A	28	Bracket, MD	1	
8355595-A	29	Heat sink	1	
8353489-A	30	Chassis, PEF504	1	
8360673-A	32	Spacer, BNC	2	
8377161-A	41	Screw plate	2	
8316268-B	51	Shield band	1	
3159625-A	52	Shield case	1	
3172099-A	53	Handle	1	
8377076-A	54	Stopper	2	
294971-C	56	Panel, front	1	
3159623-A	57	Panel, rear	1	
288060-A	59	Bezel	1	
3149315-A	60	Cover, side	2	
3149317-A	62	Foot, rear	4	
3140755-A	63	Foot	4	
ERR0073	64	Bush	1	
8360724-B	65	Spacer	2	PS-4N (6.4H)
3149318-A	66	Filter	1	
8353491-A	67	Plate	1	
8364166-A	68	Plate	1	
8322428-B	69	Rubber	1	
8330711-B	71	Cushion	2	
8330711-F	72	Cushion	1	
3149319-A	73	Knob	1	AT
3149320-A	74	Knob	1	BT
3149321-B	75	Knob	6	S18
3149322-C	76	Knob	1	S24
3149323-D	77	Knob	2	URV
3149324-C	78	Knob	4	S18B
3122685-E	79	Knob	2	0022
3149325-B	80	Knob	6	LSW
3149324-D	81	Knob	1	S18B
8340163-B	83	Rivet	4	
8340164-A	84	Rivet	1	
8360723-A	85	Support	10	
8360723-G	86	Support	1	

Part Code	Symbol	Description	Q'ty	Remarks
8340166-A	87	Bush	1	
8353492-A	91	Knob	1	P
8353493-A	92	Rubber	1	
8353494-A	93	Rubber	2	
8353501-G	94	Band	1	
8383455-E	95	Guide	3	
849085	98	Label	1	
XCA0661	301	Screw, sems	14	M3 x 8
8340167-C	303	Screw, sems	4	M4 x 20
XCA6205	306	Screw	3	M2 x 5
XCA6306	307	Screw	6	M3 x 6
XCA6308	308	Screw	30	M3 x 8
XCA6312	309	Screw	10	M3 x 12
XCA6316	310	Screw	4	M3 x 16
XCA6410	311	Screw	5	M4 x 10
XCA1820	313	Screw	5	M3 x 10
XCA0782	315	Screw	5	M2.6 x 4
XCA7306	316	Screw, flat	30	M3 x 6
XCA7410	317	Screw, flat	4	M4 x 10
XCA1879	401	Washer, spring	10	M3
XCA1881	402	Washer, spring	5	M4
XCA1855	403	Washer	10	M3
XCA1857	404	Washer	5	M4
XCA1706	405	Nut	10	M3
XCA1707	406	Nut	5	M4



V-1050F
EXPLODED VIEW

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